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Business Cycle Research and the Needs of Our Times

ARTHUR F. BURNS
Director of Research

33rd ANNUAL REPORT

NATIONAL BUREAU
OF ECONOMIC RESEARCH, INC.

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THIRTY-THIRD ANNUAL REPORT

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Part One

BUSINESS CYCLE RESEARCH AND THE NEEDS OF OUR TIMES

BUSINESS CYCLE RESEARCH AND THE NEEDS OF OUR TIMES*

I

The gift of prophecy has never loomed large in the endowment of economists, whether lay or professional. A generation ago, however, the professional analyst of business conditions at least had the advantage of being able to organize his thinking around such venerable concepts as a self-generating cycle and a regularly rising secular trend. If the advantage proved ephemeral, it nevertheless kept uncertainty under decent restraint while it lasted. Looking back across the years between the Civil War and the first World War, one could see a fairly regular fluctuation in business activity emerging. Except for the lapse in 1895, each peak of an expanding wave towered above its immediate predecessor. The shortest of the nine cycles before 1914 lasted 35 months and the longest only 46 months. The amplitudes of successive cycles were less uniform but severe depressions were infrequent. Through the international gold standard our economy was linked closely to the rest of the world. Every recovery and recession in Western Europe had its counterpart in American experience, although we managed to generate some special cycles of our own. The most spectacular fluctuations occurred commonly in our financial markets and activities preparatory to investment expenditure; and since these seemed to have a critical bearing on developments in the industrial sphere, the movements of stock prices, interest rates, business failures, and investment orders attracted wide attention.

The outbreak of war in 1914 brought new and difficult economic problems. It was generally expected, however, that upon the return of peace the dislocations wrought by war would quickly vanish and the world economy revert to its prewar pattern of growth and fluctuation. This expectation was scarcely fulfilled outside the United States. A wild inflation, which enabled Germany to escape the world-wide depression

* This paper was presented at the annual meeting of the Board of Directors of the National Bureau, held March 2, 1953. I owe a heavy debt to my colleagues, especially Geoffrey H. Moore, for advice and assistance.

of 1920-21, brought disaster in late 1923. Inflation stopped short of complete riot in France but lasted longer and likewise served to insulate its economy. England followed a path of financial orthodoxy, but could not reduce unemployment to the prewar level and faced the ordeal of a general strike in 1926. Russia, having fallen towards the close of the war under communist control, lost little time in organizing for a test of strength with the outside world. Of the great powers the United States alone enjoyed a return to "normalcy." While the depression of 1920-21 was severe, it passed quickly and was widely accepted as a salutary check of speculative exuberance. The prosperity that followed grew marvelously except for a pause in 1923-24 and another in 1926-27. Business confidence ran high despite the monetary, industrial, and political disorganization in other parts of the world. No special controls beyond those residing in the Federal Reserve System seemed necessary to keep the business cycle in check. And for a brief while, as one foreign nation after another limped back to the gold standard under the umbrella of our easy money policy, the prewar world seemed restored.

As we look back to the 1920's, three facts about the business cycle stand out. The first is that it was natural to frame expectations about the business future on the assumption of international peace and of normal business relations among nations. Second, it was natural to think of the government as playing a minor role in business fluctuations. Third, it was natural to think of business depressions as passing interruptions of progress. This concept of normal business in a peaceful and progressive world, which ruled our economic thinking in the twenties, was severely tested by stubborn depression in the thirties, and then nearly shattered by war and its sequelae in the forties. The old order did not change at once, but it changed swiftly. International disunity erupted first in currency and trade wars, later in ideological and military warfare. And prolonged depression, a second world war, and the growing menace of communism brought to the American people a vast network of controls, high taxes, still higher expenditures, but also a new conception of public responsibility for coping with booms and depressions.

II

The presidential campaign of 1952 gave clear testimony of how profoundly the economic and political storms of recent years have changed our intellectual outlook. The Republican party was not less emphatic than the Democratic party in urging the importance of governmental action to foster a stable economy. In the course of one of his

addresses, Mr. Eisenhower declared that "never again shall we allow a depression in the United States." He went on to say that if signs appear "of any . . . depression that would put . . . men and women out of work, the full power of private industry, of municipal government, of state government, of the federal government will be mobilized to see that that does not happen." This declaration of governmental responsibility goes well beyond the Employment Act of 1946. It caps a long line of social thinking that first had as its objective the cushioning of depression, next pump-priming expenditure, then compensatory fiscal policy, and, finally, comprehensive contracyclical action.

The traditional attitude of letting business depressions "blow themselves out" was already repudiated by the Hoover administration. Its experiments with contracyclical devices were not sufficient, however, to check the rising tide of unemployment. The Roosevelt administration moved with greater vigor and attempted both to engineer recovery and to reconstruct economic society. New measures designed to increase the money supply, raise the price level, reform the banking system and security markets, relieve the distress of farmers and unemployed workers, aid local governments, protect home owners, strengthen trade unions, stimulate construction work, and reduce the inequality of personal incomes followed one another in quick succession. On the whole, consumer spending responded much better to the governmental measures than private investment. Unemployment was reduced but not eliminated. In 1937-38 economic activity suffered a sharp setback and eight million were still unemployed in 1940.

Since then the course of international events has dominated the economic scene. Military demands for men, materials, machines, and munitions started to climb after the collapse of France and became insatiable after the attack on Pearl Harbor. Taxes increased sharply, yet expenditures outran taxes and a huge federal deficit accumulated. At the same time, personal incomes mounted, unemployment disappeared, civilian consumption increased, liquid assets piled up, and curbs on inflation replaced recovery stimulants. The war experience raised the hope not only of intellectuals but of common folk everywhere that depressions could be prevented in the future by vigorous governmental policy. Before long official pronouncements of individual governments, including our own, and the Charter of the United Nations gave eloquent expression to this hope.

With the approach of victory men's minds turned again to the tasks of peace. In 1944 federal outlays on goods and services were over 40 per cent of the gross national product, and of course interest and transfer

payments carried dollar expenditures far beyond the volume of purchases. Under the circumstances there was, quite naturally, considerable uncertainty whether demobilization and abrupt cuts in war production could be carried through without bringing back mass unemployment. The fears proved unfounded, The civilian economy, starved for self-expression through the war and more handsomely equipped with cash than ever before, manifested a power with which not many economists were then inclined to credit it — a power to generate activity on as lavish a scale as had the military a few years earlier. Between the first quarters of 1945 and 1946, federal purchases fell from an annual rate of $91 billion to a rate of $26 billion. But buying by the rest of the community, principally households and domestic business firms, increased sufficiently to replace two-thirds of the decline. By the first quarter of 1947 federal purchases were down to an annual rate of $16 billion, a drop of $75 billion from their peak rate. In the meantime, the gross national product had risen slightly, so that the rest of the economy fully compensated for the unprecedented reduction in governmental spending. Of course, commodity prices rose sharply after price controls were dropped and the rise continued well into 1948. At the same time the physical volume of activity also increased and all major branches of the economy, including federal purchases which were already being lifted by Marshall Plan aid, continued to expand until the closing quarter of 1948.

The recession which began in the fall of that year was of slight consequence. Consumer expenditures continued to expand, as did housing construction, automobile production, and many other activities. In all the gross national product declined merely 4 per cent, and this reflected principally a drop of inventory investment. By the last quarter of 1949 aggregate activity was again moving upward. Recovery was rapid and proceeded without special aid from the public purse, except for the veterans' insurance dividend, until the fateful month of June 1950 when the communists struck with guns in Korea. The noble illusion of peace in our time was now ended. Once again the government projected a heavy phase of military spending, higher taxes, and ramifying controls. Meanwhile, consumers and businessmen alike, fearing that shortages of civilian goods would soon develop, rushed to stock up on all sorts of things. For a few months prices rose at an alarming pace; but production also expanded rapidly and by early 1951 it became evident that merchandise was generally in good supply and that the anticipated shortages had failed to materialize. Presently, consumers revised their expectations and stopped adding frantically to their accumulated stocks.

Manufacturers and dealers in consumer goods responded in similar fashion, and a sizable decline of output in the consumer goods industries followed. This quiescence of the civilian sector proved very timely and neutralized the inflationary pressure of military spending. Federal outlays on goods and services, which were at an annual rate of $31 billion in the first quarter of 1951, rose to $55 billion eighteen months later; but the aggregate physical volume of production increased only slightly and the level of wholesale prices declined somewhat. Of late consumer spending has increased perceptibly, although personal savings have continued at an exceptionally high level.

Taken as a whole, the quarter century since 1929, some of whose features I have so hastily sketched, provides the sharpest contrasts of business conditions in our history — contraction running from the mildest to the most violent of which we have any knowledge, expansion ranging from hesitant recovery to a long and vigorous boom. The tendency toward regularity in cyclical fluctuations, which seemed so clear a generation earlier, became fuzzy. Social control of business cycles emerged as a political necessity, both domestically and internationally. Extensive experiments in contracyclical action were undertaken, of which a persistent tendency toward easy money and a persistent difficulty in attaining budgetary balance became the principal outward symbols. Foreign developments at times aided, at others complicated, the efforts of government to promote a stable and prosperous economy. Over a considerable part of the period the rate of governmental spending, buffeted about as it was by international developments, itself became the principal active factor in the economic situation, rather than a response to variations of private spending. In some years the civilian economy compensated for the violent shifts in public spending, in others it aggravated their consequences. At all times, even when sales and profits were eminently satisfactory, uncertainty about the course of international relations or of governmental economic policy added a note of anxiety to business planning. On the other hand, the social legislation of the period, which aimed to afford some protection against the hazards of unemployment, old age, bank failures, and declining farm prices, brought a new sense of security to millions of Americans.

III

In closing his first book on *Business Cycles* in 1913, Wesley Mitchell ventured the prediction that, since cumulative changes in economic organization are likely to occur in the future as they have in the past,

the economists of each generation "will see reason to recast the theory of business cycles which they learned in their youth." The course of events in the past quarter century has borne out his historical insight. Not only have recent fluctuations in aggregate activity become less regular in duration, but many of their internal features have been modified. For example, the tendency of interest rates to rise during expansions of aggregate activity has become decidedly weaker, the ability of wage rates to resist contractions has become stronger, the conformity of the velocity of bank deposits to over-all economic movements has become irregular, the lag of dividends at cyclical turns has become shorter, the tendency of private construction contracts to lead general recovery and recession has become less dependable. But cumulative movements of expansion and contraction have continued to diversify our economic fortunes, and many features of earlier business cycles have persisted although they have been obscured by the predominantly expansive pressures since 1938. The sequence of developments in 1948-49, as Geoffrey Moore has shown, bore a striking resemblance to earlier cyclical declines; and the shrinkage of private spending during 1951, when public spending was rapidly expanding, is another warning that the present boom will not last forever.

The only things we can be reasonably certain of in the proximate future are, first, that our economic system will continue to generate cyclical tendencies, second, that the government will at some stage intervene to check their course. The outcome of these opposing tendencies must needs be, at this time, a matter of judgment. It is reasonable to expect that contracyclical policy will moderate the amplitude and abbreviate the duration of business contractions in the future, so that our children will be spared the sort of economic collapse that blighted lives in the early thirties. The strengthening of the banking system, the development of unemployment compensation and general assistance programs, the large and automatic reduction of taxes that now takes place when the national income contracts, and above all the assurance that the government is not likely to permit deflation to proceed unchecked, support this faith. But there are no adequate grounds, as yet, for believing that business cycles will soon disappear, or that the government will resist inflation with as much tenacity as depression, or that deep but brief contractions such as occurred in 1920-21 and 1937-38 will never again take place. Our limited experience with contracyclical policy does not provide strong support for the belief, so often expressed by theoretical writers, that the government is capable of adjusting its spending, taxing, and regulatory policies with the fine precision and

promptness needed to assure virtually full employment and a virtually stable price level at all times. Not only is the art of contracyclical action as yet imperfectly understood, but there are practical obstacles to the effective use of such knowledge as exists. In a world in which international crises keep recurring, in which the domestic population clamors for relief from burdensome taxes, and in which different groups of the community are either deserving or persuasive enough to win the special solicitude of government, considerations of economic stability neither are nor can be the sole concern of public policy.

These obstacles to effective contracyclical action are likely to continue. It may be hoped, however, that as knowledge of business cycles is extended, contracyclical policy will improve and the burden of counteracting its own mistakes will become lighter. Interest in business cycles has never been so keen, or the social and political importance of curbing their wandering so widely recognized, as at present. Perhaps, before many years pass, an economic general staff will emerge within the government and take on some of the characteristics of military general staffs. Just as the military often find it helpful to draft plans for resisting different potential aggressors, each or a combination of whom may strike at this point or at that, so an economic staff may in the future find it prudent to work concurrently on plans for meeting a great variety of economic troubles that we loosely call booms and depressions. And just as the military staff tends to concentrate on immediate danger points, but without neglecting the lessons of past campaigns and battles, so the economic staff may come to combine historical and theoretical research on business cycles with the devising of policies to meet emerging conditions. But though much may be accomplished by a general economic staff in the future, it is unlikely that it will ever be able to pursue far enough or deeply enough all the problems that come its way. In the future, as in the past, the scientific study of business cycles will therefore continue to be a primary responsibility of our great centers of learning — the universities and private research institutes like the National Bureau.

IV

The "new economics," of which less is heard nowadays than a few years back, found little need for the study of business cycles as an earlier generation knew it. Equipped with a "consumption function" that was supposed to take full account of the influence of variations in the national income on consumer outlay, looking upon investment expendi-

ture as an "exogenous" variable that shaped the course of the nation's income, and braced by a crisp formula of compensatory fiscal policy, the new economists had sufficient thunder without bothering much about the cumulative processes of change and adjustment in a business economy. Their bold thinking stimulated much useful analysis and research, but experience has not dealt gently with their simplification of Keynes' teaching. Under the influence of war and inflation, a strong interest has of late re-emerged in the mutual adjustment of costs and prices; in the influence of consumer spending, profits, construction costs, and terms of financing on business investment; in the influence of accumulated assets, borrowing, and changing expectations of consumers on their rate of spending; in the influence of investment on industrial productivity, on business competition, and commodity prices — in short, in the numerous and lagged responses that bind economic activities together into a system. Theoretical models of business cycles are once again exciting general attention and, while they may sometimes unwittingly caricature the economic process, their emphasis on cumulative movements, lags, and self-reversing tendencies is salutary.

Except for the minor setbacks in 1945 and 1948-49, our economy has moved steadily forward since 1938. This is undoubtedly the longest sustained expansion of recent history, yet it is not the only movement of its kind. The period from 1921 to 1929 was also one of sustained expansion broken only by minor cyclical declines; so too was the period from 1897 to 1907, 1885 to 1893, and 1867 to 1873 — if not the entire span from 1858 to 1873. Each of these major expansions culminated in a speculative boom, each was followed by deep depression, and three of the depressions lasted years. One of the important tasks awaiting students of business cycles is thorough historical study of the booms that preceded these as well as other contractions. Studies of this type are worth making, not because of any immutabilities of historical sequence, but because there is a need to clarify the work of policy makers who, while earnestly resolved to do away with depressions, sometimes seem to neglect the need of controlling booms and trust too exclusively in our ability to check any contraction that may get under way.

Of the massive materials compiled by the National Bureau, we have thus far analyzed most carefully the record of the twenties. The extravagance of its boom in common stocks is notorious, but the speculation of the time was by no means confined to stocks. It extended to urban real estate, foreign government bonds, and many types of industrial enterprise. As the decade rolled on, borrowing piled up in all directions but the quality of new loans, as measured by their later ability to meet the

test of hard times, declined progressively. Thus Ilse Mintz has found that 18 per cent of the dollar amount of foreign government loans placed in the United States during 1920-24 defaulted during the thirties. The wave of defaults caught a much larger proportion of later issues: 50 per cent of the bonds acquired from 1925-29 and 63 per cent of those acquired in 1928. Saulnier's study of urban mortgage loans by life insurance companies, the study of mortgage loans of commercial banks made by Behrens, and Hickman's recent study of domestic corporate bonds likewise indicate a progressive relaxation of credit standards. Hickman finds, for example, that 17 per cent of the par amount of railroad bonds offered during 1920-24, but fully 53 per cent of the amount offered over the next quinquennium, went into default by 1944. The defaults ran lower in the case of public utility and industrial bonds, yet each of these groups also showed a trend toward deterioration. The net result was that the bonds offered in the early twenties eventually yielded something more to investors than they had been promised, while the offerings of the late twenties — especially those issued at the very height of the boom — brought the average investor far less than the promised yield.

Hickman has also gathered some empirical evidence on the business psychology of the twenties, and this is especially interesting in view of the huge expansion in practically every category of private debt in the United States since 1945. One might perhaps expect that the investment rating agencies, if not the financial market generally, would have recognized the increasing risk that attended the new bond issues. This did not happen in the twenties: the optimism of the time was general and financial specialists did not escape infection. Judging from Hickman's compilations, the rating agencies failed to sense the declining quality of new bond issues before 1928, perhaps not even then. The judgment of the market place was poorer still, as is evident from the fact that the proportion of new offerings rated as high-grade by the market rose rather consistently over the decade for each of the major bond categories — railroads, utilities, and industrials. These findings enlarge the significance of Ilse Mintz' earlier comparison of the risk premium on foreign bonds with their subsequent performance. Apparently, investors in domestic as well as foreign securities "not only were unaware of the increasing riskiness of new . . . issues but even grew more confident at the very time the quality of new bonds was lowest."

It is, of course, impossible for any people to see their own current actions, shaped as they are in large degree by expectations of an uncertain future, with the cold detachment and knowledge that a later gen-

eration can sometimes bring to the same events. Economic research will never alter this pervasive feature of life. It may, however, usefully bend the course of events, first by bringing the lessons of experience to bear on current developments, second, by devising improved methods of diagnosing the direction in which the economy is currently moving. The latter problem, no less than the former, has long occupied the attention of the National Bureau. Our greatest contribution has been, of course, the development of national income and gross product accounts which are perhaps the most widely used of all statistics at the present time. Morris Copeland's highly original investigation of money flows, which we published last year, provides a new set of tools that the Federal Reserve Board has already found helpful in its studies of the relation between credit and economic stability. Still another approach to economic diagnosis is the one that Mitchell, Moore, and I have used in our studies of indicators of cyclical revivals and recessions.

Recently, we have laid plans for exploring how one of the firmest and most important of the Bureau's findings about the business cycle might be put to current use; namely, that the cycle in aggregate activity has been invariably preceded by a remarkably regular cycle in the proportion of individual activities undergoing expansion. This cycle in the structure of economic activity is a very sensitive fluctuation. Its amplitude has been large even when aggregate activity has undergone only minor fluctuations; further, its movements have led by a considerable interval the movements of aggregate activity itself. But before this knowledge, which we have wrung from observations cast in a cyclical mould, can be applied to the analysis of current conditions, it will first be necessary to carry out extensive experiments and see if it is possible to construct from raw data a tolerably stable monthly or quarterly measure of the degree of preponderance of expansions over contractions or vice versa in individual lines of economic activity. In contrast to our earlier efforts, such an index of diffusion would not involve any assumptions about regularity of leads or lags of particular series, and this should enhance its usefulness in times of stormy change such as ours.

But even if its predictive value turned out to be small, a soundly conceived index of diffusion — preferably, a set of such indexes covering output, employment, prices, and profits — should at least help students in their efforts to arrive at informed judgments about the current state of the economy. For if it is well to know whether aggregate activity has recently risen, it is surely desirable to know also whether the scope of expansion in our complex economy has broadened or narrowed. A few figures based on a cyclical index of diffusion that we built up several

years ago from a sample of over 600 time series for the interwar period may perhaps be suggestive. At each peak of aggregate activity, the expansions and contractions of individual activities were approximately in balance; that is to say, the proportion of expanding series then stood at or close to 50 per cent. Three months later this proportion declined to 47 per cent in the downturn of 1926, to 41 per cent in the downturn of 1923, 38 per cent in the downturn of 1920, 31 per cent in the downturn of 1937, and 29 per cent in the downturn of 1929 — the specific date for the figure last cited being September or one month before the stock market crash. This ranking, based on the *scope* of the contraction almost at its beginning, turns out to be precisely the same as that of the *depth* which the several contractions eventually reached. Whether this correspondence has any predictive significance is uncertain. It does seem, however, that if compact and up-to-date information on the scope of the several contractions had been available at the time, whether through a diffusion index or some other statistical device, men charged with responsibility for formulating economic policy could have gone about their tasks with a somewhat keener awareness of the economic state of the nation.

V

The figures I have cited on the contractions of the interwar period reinforce the judgment, long entertained by observers of economic conditions, that the causes of varying degrees of severity of business contractions are to be sought primarily in the developments that precede them, rather than in the fresh complications that crop up while the contractions are in progress. However, although it is justifiable in the current setting to emphasize study of booms, it would be shortsighted to neglect the study of depressions. The high goal of business cycle research is to disclose and, as far as possible, clarify the multitude of problems with which contracyclical programs must grapple. The business cycle of a speculative thinker may be one phenomenon: the business cycles of experience are many. Governmental measures that are well suited to one decline of aggregate output may be poorly suited to another, even if its magnitude and momentum are no different. An age which takes contracyclical policy seriously must seek to improve knowledge of how an economic organization based on substantial freedom of individual enterprise typically generates cumulative movements of expansion and contraction. Not less important, however, especially in times like ours when international factors and governmental policy loom so large, is

the need to push on from knowledge of the typical course of business cycles to their special circumstances and to the direct examination of the effectiveness of alternative contracyclical devices.

A significant part of the National Bureau's research is gradually moving in these directions. The development of factual knowledge about governmental economic activities has become one of our major themes, as the staff reports in Part Three indicate. Thus Kendrick is investigating federal expenditures over the past century and a half, giving special attention to the influence of wars on later spending. Seltzer, Holland, and Dobrovolsky are making historical and statistical studies of the impact of the federal income tax on individuals and corporations. Copeland is investigating the behavior of federal and local finances over the past sixty years, concentrating on the factors that have given rise to changes in the public debt. Robinson is studying how the federal government has managed its debt, especially during the great wars of our history. Earl Rolph, who is also concerning himself with debt management, is analyzing the effects of different policies on economic conditions in the United States and several other countries in the turbulent years since 1920. The federal government is now, of course, an important lender and guarantor of loans as well as borrower. The recent growth in these lending operations and their ramifying economic effects are being explored by Saulnier, Jacoby, Halcrow, and their associates. Further, Stigler and Abramovitz have begun an inquiry into the trends of governmental employment in several foreign countries, with the aim of broadening the factual basis for interpreting the economic growth of government that has taken place in the United States over recent decades and which Fabricant has recorded in our recently published volume.

In addition to these basic studies, Firestone has compiled new monthly series on federal receipts and expenditures since the 1870's, which lay the groundwork for more thorough analysis of the role of fiscal policy in past business cycles than has hitherto been possible. Even a rough inspection of these records suggests how instructive they are likely to prove. For they show that even before World War I federal revenues tended to move in close harmony with the business cycle, while expenditures ordinarily rose during contractions as well as expansions. In other words, "built-in" fiscal stabilizers are not an invention of recent years, although their importance has gained immensely with the growth of the federal budget. Nor can unbalanced budgets qualify as a new development of peacetime finance. It is only proper to add, however, that although annually balanced budgets have been elusive in experience,

earlier generations had far better success than our own both in restraining the size of public deficits and in alternating them with surpluses.

International economic relations, which have been a constant source of anxiety in our times, are also assuming some importance in the Bureau's research program. To facilitate informed judgments about the prospects for enlarging our foreign trade and investment, Fabricant is now devoting himself to a close study of their trends. Penelope Hartland is investigating the influence of international capital movements on Canadian development. Ilse Mintz is analyzing the cyclical fluctuations of our foreign trade. Morgenstern is completing a study of the cyclical behavior of international financial transactions, and Woolley is drawing plans for extensive statistical research on the structure of world trade and payments.

While only some of our studies of governmental activities and international economic relations are directly concerned with cyclical behavior, they all are likely to enrich, and to a considerable extent have already done so, those of our investigations that are more narrowly devoted to cyclical issues. The like is true of the studies of secular changes in domestic capital formation under Kuznets' direction, of production and productivity under Mills, of wages and the labor force under Wolman, and of the workings of financial institutions under Saulnier. All these investigations are developing new information on the changing institutional setting within which business cycles have run their course, or are adding to the statistical knowledge needed to construct realistic models of the business cycle, or are contributing directly to the understanding of economic fluctuations. Partly under their influence, partly as a result of progress internal to our specialized work on business cycles, our current research on economic fluctuations — even when it seems immersed in distant periods or issues — is sensitive to newly emerging conditions. We continue to investigate the typical features of business cycles, seeking in the spirit of science well-founded generalizations having a wide range of application. But our research has reached a stage where we can usefully give increasing attention to variations among business cycles and to the workings of contracyclical policies. Several members of our business cycle group are now engaged on significant research in these directions.

Thirty years have passed since *Business Cycles and Unemployment,* our first study of business cycles, was published. This volume was devoted to an objective analysis of the contribution that the government, the banking system, and individual business firms could make to economic stability. Since then we have returned from time to time to

explicit research on contracyclical policies — as in the studies of public works by Wolman and by Gayer in the early 1930's, Maxwell's recent study, *Federal Grants and the Business Cycle,* and the Conference papers on *Regularization of Business Investment* which are now in press. Might it not be well, however, to pursue research on contracyclical policies more deliberately? For some time we have been considering the feasibility of undertaking a full-scale empirical study of the contracyclical efficacy of our unemployment insurance system, another of the experience gained since 1930 in the use of public works as a contracyclical weapon, still another of the probable changes in disposable income that would result under a given set of conditions from specified changes in personal income tax rates or deductions. But the time seems ripe, if we could manage it without injury to the basic research now in hand, for a comprehensive investigation of business cycle policies — an investigation that would have the same general aim as our first book on business cycles, but which would deal with the new as well as old instruments of policy that have figured in the economic thinking and practice of our generation.

A broad inquiry of this sort, carried out by a corps of outstanding scholars, could make a contribution of the first importance to public welfare as well as economic knowledge. It would be well for us to keep this project before our minds, even if we cannot find the way to it promptly. And we should not be deterred by the prospect that the new investigation, like its predecessor of thirty years back, will leave many questions unanswered. For not the least of our current needs, as Cournot so well expressed it for his time, is to make "clear how far we are from being able to solve, with full knowledge of the case, a multitude of questions which are boldly decided every day."

Arthur F. Burns
*Director of Research**

* Mr. Burns was granted a leave of absence on March 19, 1953. He is now serving as Economic Adviser to the President of the United States.

Part Two

ACTIVITIES DURING 1952

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NEW STUDIES

Economists generally subscribe to the principle that the countries and regions of the world are mutually interdependent, and there is wide agreement that the problems of one area cannot be satisfactorily solved independently of the solutions found for other areas. However, analyses of the economic problems of the world in terms of these interrelations have yet to advance beyond a rudimentary level. In significant part this is because we lack a systematically organized body of information on inter-area flows of goods, services, claims, and money. Yet, as the nations of the world associate more closely and co-operate more fully on international economic problems, the materials needed to complete the picture of international relationships become increasingly available. The time has seemed ripe, therefore, for developing a technique of description and analysis which encompasses the world economy and testing it with the available data. Herbert Woolley is considering the several possibilities and organizing a research project on the structure of world trade and payments. We hope that the substantial funds needed to push this major project beyond the exploratory stage will become available.

Another new study in the field of international economic relations was begun by Robert Lipsey. It complements our current work on foreign trade cycles and trends. To provide basic series needed in these studies, Mr. Lipsey is calculating index numbers of prices and quantities for the exports and imports of the United States, by commodity groups. He hopes to cover the period back to 1869, preferably on a quarterly basis.

A beginning was made on a study of bank capital problems, with the aid of a grant from the Association of Reserve City Bankers. Initially the investigation is concentrating on the ratio of equity capital to total assets among commercial banks. This ratio has apparently been declining for some time, and is exceptionally low compared with other forms of business enterprise. An effort will be made to determine the factors underlying the trend and to explore its implications. The study, which

is part of the Financial Research Program, is being directed by David Durand.

A study of unincorporated business was begun in co-operation with the University of Michigan Survey Research Center. With the help of the data collected in the annual Surveys of Consumer Finances, it is hoped to learn something of the economics of this type of business enterprise. At the Survey Research Center Lawrence R. Klein is exploring the general economic characteristics of incorporated business owners and the differences between them and other persons. At the National Bureau Daniel B. Suits, appointed a Research Associate for 1952-53, is dealing with the financial aspects of unincorporated businesses, especially in relation to their growth and decline.

Our other Research Associate for 1952-53, Earl Rolph, is making a comparative study of national debt and fiscal operations. He expects to cover Canada, France, and the United Kingdom, as well as the United States, for the period beginning with 1920.

PUBLICATIONS DURING THE YEAR

Eleven publications were issued during 1952 and one in March 1953:

Carl F. Behrens, *Commercial Bank Activities in Urban Mortgage Financing*

Arthur F. Burns, Editor, *Wesley Clair Mitchell: The Economic Scientist*

Morris A. Copeland, *A Study of Moneyflows in the United States*

Solomon Fabricant, *The Trend of Government Activity in the United States since 1900*

W. Braddock Hickman, "Trends and Cycles in Corporate Bond Financing," *Occasional Paper 37*

Avram Kisselgoff, "Factors Affecting the Demand for Consumer Instalment Sales Credit," *Technical Paper 7*

Simon Kuznets, *Shares of Upper Income Groups in Income and Savings*

Clarence D. Long, "The Labor Force in War and Transition: Four Countries," *Occasional Paper 36*

James A. Maxwell, *Federal Grants and the Business Cycle*

Frederick C. Mills, "Productivity and Economic Progress," *Occasional Paper 38*

Conference on Research in Business Finance

Conference on Research in Income and Wealth, *Studies in Income and Wealth, Volume Fifteen*

The volume published as a memorial to Wesley Mitchell, Director of Research of the National Bureau during its first twenty-five years, consists of a series of essays surveying Dr. Mitchell's contributions to economic science. Addressed to the wide public interested in the cross-currents of recent economic thought and in the part played by Dr. Mitchell, along with others, in building a science of economics, the volume includes a sketch of Dr. Mitchell's life by his wife, two autobiographical letters, three essays written by outstanding economists during Dr. Mitchell's lifetime and eleven written after his death in 1948.

Three publications deal with the size and utilization of the labor force. Clarence Long's paper, "The Labor Force in War and Transition: Four Countries," *Occasional Paper 36,* traces the expansion and contraction of the labor force during and after World War II in the United States, Great Britain, Canada, and Germany. Long analyzes the factors that contributed to these vital changes and indicates how they may influence the outcome in a future national emergency. Frederick C. Mills' essay on "Productivity and Economic Progress," *Occasional Paper 38,* discloses how much of the increase in national product during the last half-century may be attributed to the increase in labor input and how much to the rise in productivity. He goes on to show, in summary fashion, how the economy utilized these gains. Solomon Fabricant's book, *The Trend of Government Activity in the United States since 1900,* demonstrates how extensively the quantity of labor and other resources devoted to governmental functions has risen during the last half-century. The factors responsible for the expanding scope and changing character of governmental activities are dealt with, and some observations are made on the trend in governmental efficiency.

One specific function of government is examined by James A. Maxwell in *Federal Grants and the Business Cycle.* He sets forth the record of federal grants-in-aid to state and local governments and appraises the effectiveness of this fiscal device as a counter-cyclical instrument.

Four publications are directed to financial topics. The papers published in *Conference on Research in Business Finance* survey the statistical materials available in the field of business finance, explore methods of using them to derive useful conclusions about financial behavior, and suggest areas for research. The authors are Lawrence Bridge, David Durand, Edgar M. Hoover, Neil H. Jacoby, Homer Jones, Burton H. Klein, Albert R. Koch, Loughlin F. McHugh, Franco Modigliani, Charles H. Schmidt, J. Fred Weston, and Morton Zeman. Carl Behrens' *Commercial Bank Activities in Urban Mortgage Financing* develops new data on the experience of banks with mortgage loans since 1920,

and an introduction by Raymond J. Saulnier compares the banks' results with those of life insurance companies. Extensive new statistical materials on the volume of bond financing are presented and analyzed by W. Braddock Hickman in "Trends and Cycles in Corporate Bond Financing," *Occasional Paper 37*. Measurements of the influence of consumer income and credit terms on the volume of consumer credit are reported by Avram Kisselgoff in "Factors Affecting the Demand for Consumer Instalment Credit," *Technical Paper 7*.

Morris Copeland's book, *A Study of Moneyflows in the United States,* sets up a new system of accounts, with data for 1936-42, that makes it possible to trace the money payments made between various broad sectors of the economy for specified purposes. These accounts supplement in a significant way the national income and product accounts because they cover not only the money payments for production and income, but also transactions involving the purchase and sale of physical and financial assets. Hence all flows of money and credit for these purposes are included, and the relations between moneyflows and changes in national product and income can be seen. In an introduction to the book, Dr. Winfield W. Riefler says: "The moneyflows system enables economists for the first time to view an integrated picture of the economy where the functioning of our monetary and credit system can be studied in conjunction with other economic developments."

Two publications are concerned with the size distribution of income. Simon Kuznets' *Shares of Upper Income Groups in Income and Savings* presents annual estimates, for the period 1913-48, of the percentage of the countrywide total income received by the upper income groups. The major sources of income of these groups are compared with those of the rest of the population, factors relating to their income status are examined, and the cyclical variability of their income and savings is analyzed. *Volume Fifteen* of *Studies in Income and Wealth* contains papers on the size distribution of income and factors related to it by Dorothy S. Brady, Janet A. Fisher, Milton Friedman, George Garvy, D. Gale Johnson, Simon Kuznets, Mollie Orshansky, and Margaret G. Reid, with an introduction by Edward D. Hollander.

FORTHCOMING PUBLICATIONS

Five reports are now in press:

Robert Ferber, "A Study of Aggregate Consumption Functions," *Technical Paper 8*

Leo Grebler, "The Role of Federal Credit Aids in Private Residential Construction," *Occasional Paper 39*

W. Braddock Hickman, *The Volume of Corporate Bond Financing since 1900*

Lawrence A. Jones and David Durand, *Mortgage Lending Experience in Agriculture*

Conference on Regularization of Business Investment

Publications that will probably be issued during 1953 include, among others, *Volumes Sixteen* and *Seventeen* of *Studies in Income and Wealth,* which report the proceedings of conferences on long-term and short-term forecasting, respectively; an *Occasional Paper* by Thor Hultgren on "Transport and the State of Trade in Britain"; an *Occasional Paper* by R. J. Saulnier on the volume of government lending and loan insurance; and several *Occasional Papers* giving preliminary results of the study of capital formation and financing.

NEW PUBLICATION ARRANGEMENTS

For many years the National Bureau has been burdened with the task of publishing and distributing the books resulting from its program of research. In order to utilize the facilities and experience of an established publishing house and secure a wider circulation for its books, the National Bureau has concluded an agreement with the Princeton University Press whereby the Press will take over the publication of future National Bureau books and the distribution of existing and future National Bureau books. The agreement becomes effective April 1, 1953. *Occasional Papers* and *Technical Papers* will continue to be published and distributed by the National Bureau as heretofore.

Contributors and Associate Contributors to the National Bureau and Subscribers to the *Occasional Paper* and *Technical Paper* series will continue to receive books and papers directly from the National Bureau and should continue to address their inquiries and orders to the National Bureau. After April 1, 1953 orders for books from all others will be filled by Princeton University Press and should be addressed to the Press at Princeton, New Jersey. Orders for *Occasional Papers* and *Technical Papers* and requests for the *Annual Report* should be addressed to the National Bureau.

CONFERENCES AND RELATED ACTIVITIES

An important part of the work of the National Bureau is stimulating economic research and the interchange of ideas. In this activity the Universities-National Bureau Committee for Economic Research has proved an effective agent. Under its auspices the Conference on Research in

Income and Wealth was organized in 1935, and since 1948 the Committee has sponsored a series of special conferences on such topics as economic growth, business cycles, business finance, and the regularization of business investment. Two conferences were held in 1952 and plans for several others have reached an advanced stage.

Conference on Research in Income and Wealth

The subject of the meeting in New York in October was input-output analysis, or interindustry relations. The following papers were submitted:

Some Basic Problems of Empirical Input-Output Analysis, by Wassily Leontief, Harvard University

The Uses of Interindustry Relations Data and Methods, by W. D. Evans and Marvin Hoffenberg, Bureau of Labor Statistics

A Review of Input-Output Analysis, by Carl Christ, Johns Hopkins University

A Survey of Input-Output Research, by Ronald W. Shephard, The Rand Corporation

Aggregation and Errors in Input-Output Models, by Oskar Morgenstern and Thomson W. Whitin, Princeton University

The Development of the Bill of Goods for Interindustry Analysis, by S. S. Netreba, Bureau of Labor Statistics

The Treatment of Final Demand in the 1947 Interindustry Relations Study:

- Final Demand Sectors, by S. A. Jaffe, Bureau of Labor Statistics
- The Government Sector, by Irving Licht, Bureau of Labor Statistics
- Foreign Trade, by M. Weitzman and P. M. Ritz, Bureau of Labor Statistics
- Construction, by David Siskind, Bureau of Labor Statistics

Special Problems of Commodity Producing Industries:

- Manufacturing, by Jack Alterman and M. R. Goldman, Bureau of Labor Statistics
- Mining, Fuel, and Power, by Jack Faucett, Bureau of Labor Statistics
- Agriculture, by P. M. Ritz, Bureau of Labor Statistics

Special Problems of Selected Non-Commodity Producing Industries:

- Services, by Gabriel Cherin, Bureau of Labor Statistics
- Trade, by W. I. Karr, Bureau of Labor Statistics
- Transportation, by A. J. Walderhaug, Bureau of Labor Statistics

A Comparison of the Structures of Three Accounting Systems, by Stanley J. Sigel, Federal Reserve Board

Interindustry Economics and National Income Theory, by H. I. Liebling, Bureau of Labor Statistics

The Interindustry Economics Research Program of the Federal Government, by Ezra Glaser, Bureau of the Budget

Research Required for the Application of Interindustry Economics, by J. D. Norton, The Twentieth Century Fund

Technological Change and Dynamic Models, by James Duesenberry and Anne Grosse, Harvard University

Input-Output Analysis of the Puerto Rican Economy, by Amor Gosfield, University of Pennsylvania

It is expected that the papers dealing with matters of general interest will be printed as Part I, a volume in the series of *Studies in Income and Wealth,* and that the more specialized papers will be mimeographed and bound together as Part II, to be made available to research workers in the field. Raymond W. Goldsmith has agreed to serve as editor of Part I and Philip M. Ritz will serve as editor for Part II.

When it meets in October 1953, the Conference will discuss capital formation. The sessions will be devoted to three general topics: (1) estimates of capital formation, conceptual problems in the measurement of capital formation, and financial aspects of capital formation, (2) conceptual and statistical problems in the measurement of capital requirements per unit of product and of productive capacity, and (3) studies of the factors affecting private capital formation. The members of the program committee are Franco Modigliani, *Chairman,* Solomon Fabricant, and George Jaszi.

Tentative plans have been made for a meeting in 1954 on the subject of comparability of national accounts data. The program will cover six general topics: conceptual problems in the comparability of national accounts; standardized systems of national accounts; comparability in the government sector; comparability of savings and capital formation; conceptual problems of conversion to real terms; and comparability of the end uses of gross national product in real terms. Richard Ruggles is in charge of this program.

Volume Fifteen of *Studies in Income and Wealth,* containing papers on the distribution and utilization of income, was published in December. Two additional volumes will soon be ready for publication: one on long-term projections, the subject of the May 1951 meeting in New York, and the second on short-term projections, comprising the papers

presented at the September 1951 meeting at the University of Michigan.

The members of the Executive Committee of the Conference are: Dorothy S. Brady, *Chairman,* Raymond W. Goldsmith, Simon Kuznets, Nathan M. Koffsky, Donald MacGregor, Franco Modigliani, Richard Ruggles, Charles F. Schwartz, and Kenneth B. Williams.

Special Conferences

The Conference on Business Concentration and Price Policy was held in June at Princeton University. The following papers, submitted in advance, were discussed at the meeting:

Census Principles of Industry and Product Classification, by Maxwell R. Conklin and Harold T. Goldstein, Bureau of the Census

Relevance of Census Classifications to the Analysis of Monopoly, by Daniel B. Suits, University of Michigan

Measures of Concentration, by Gideon Rosenbluth, Stanford University

Economic Theory and the Measurement of Concentration, by Tibor Scitovsky, Stanford University

Measures of Monopoly Power and Concentration: Their Economic Significance, by John Perry Miller, Yale University

The Legal Concept of Market Control, by Aaron Director, University of Chicago

Survey of the Evidence and Findings on Mergers, by Jesse W. Markham, Vanderbilt University

Income Originating as a Measure of Vertical Integration, by M. A. Adelman, Massachusetts Institute of Technology

The Conglomerate Enterprise, by Corwin D. Edwards, the Federal Trade Commission

Survey of the Empirical Evidence on Economies of Scale, by Caleb A. Smith, Brown University

Aspects of the Growth in the Size of the Industrial Firm, by G. Heberton Evans, Jr. and Edith Tilton Penrose, Johns Hopkins University

Effects of Taxation on Concentration, by John Lintner and J. Keith Butters, Harvard University

The Full-Cost Principle, by Richard B. Heflebower, Northwestern University

Characteristics and Types of Price Discrimination, by Fritz Machlup, Johns Hopkins University

Secular Movements of Monopoly Prices in Manufacturing, by G. Warren Nutter, Yale University

The Nature of Price Flexibility and the Determinants of Relative Price Changes in the Economy, by Richard Ruggles, Yale University

A volume of papers, together with the ensuing discussion, is being prepared for publication in the *Special Conference Series.* The conference was organized by a steering committee consisting of George Stigler, *Chairman,* Corwin Edwards, Carl Kaysen, Edward Mason, and Clair Wilcox. Gideon Rosenbluth served as secretary.

The next conference will be on International Differences in Capital Formation and Economic Growth; it will be held in New York City in the fall of 1953. This conference is being organized by a committee consisting of Moses Abramovitz, *Chairman,* Evsey Domar, James Duesenberry, Alexander Gerschenkron, Walt W. Rostow, and H. W. Singer.

Preparations are already well advanced for a conference on Measurement and Behavior of Unemployment, to be held in 1954. The planning of this conference is being undertaken by a committee consisting of Clarence D. Long, *Chairman,* A. Ross Eckler, Richard Lester, Lloyd Reynolds, and Charles Stewart.

After long service, Simon Kuznets and Leo Sharfman retired as *Chairman* and *Vice-Chairman* respectively of Universities-National Bureau Committee for Economic Research, and George J. Stigler and G. Heberton Evans, Jr. were chosen to succeed them. The present Executive Committee consists of Arthur F. Burns, G. Heberton Evans, Jr., Benjamin H. Higgins, Dexter M. Keezer, Lloyd G. Reynolds, George J. Stigler, and George W. Stocking.

DIRECTORS AND RESEARCH STAFF

Harold F. Williamson was elected Director by Appointment of the Economic History Association, succeeding Thomas C. Cochran, whose term of office had expired. Jacob Viner was elected Director by Appointment of Princeton University.

Solomon Fabricant was appointed Deputy Director of Research in November, and Acting Director of Research in March 1953 when Arthur F. Burns went on leave of absence. Daniel M. Holland was elected a member of the Research Staff. Herbert B. Woolley was appointed to direct the exploratory study of the structure of world trade and payments. Earl Rolph of the University of California and Daniel B. Suits of the University of Michigan were appointed Research Associates for 1952-53. George Garvy of the Research Department of the Federal Reserve Bank of New York will devote part of his time to formu-

lating for the National Bureau a program of research into the size distribution of incomes in the United States, with special reference to its relation to occupation.

RESEARCH IN PROCESS

Reports by members of the staff on their research activities during 1952 are presented in Part Three. The findings mentioned there have not yet been subjected to the full critical review accorded the National Bureau's studies, and are therefore tentative and provisional.

Part Three

STAFF REPORTS

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1 Business Cycles

PERSONAL INCOME

One of the sections of my proposed *Occasional Paper,* soon to be submitted to the Directors, deals with governmental offsets to cyclical losses in personal income. Unemployment compensation programs, for example, provide such an offset and the direct results can be measured fairly well.

Because not all states paid unemployment compensation benefits before 1939, the offset can be measured on a countrywide basis only in the two recessions in labor income since 1938, neither of which was severe or prolonged. Labor income originating in government is eliminated from the analysis, to circumvent the special problem of loss of labor income resulting from the demobilization of the armed forces.

On this basis, the first recession in labor income (unadjusted for seasonal movements) began in June 1945. Labor income continued to decline until February 1946, but by April had recovered to the level of the former peak. The second recession began in September 1948 and labor income did not regain the peak level until June 1950. We measure loss of labor income as the difference between labor income in the peak month and a given month, and cumulate these losses for all months in the period under study. The amounts paid out each month as unemployment benefits and general relief minus the amounts paid out in the month of the payroll peak constitute the offset to loss of wages and salaries.

In both periods of recession and recovery, the increase in unemployment compensation and general relief offset 16 to 17 per cent of the aggregate loss in wage and salary disbursements in the private sector of the economy. Because these two recessions on a countrywide basis were mild, these measures of relative offset have limited value. It would be

more helpful to know the effectiveness of this type of offset when the loss of labor income is substantial. Study of data for individual states in the 1948-49 recession suggests that the relative offset has tended to be smaller in states that experienced more severe declines in labor income. It appears, therefore, that were the country to experience a more severe recession than in 1948-49, the offset provided by the present programs of compensation to the unemployed might be considerably less than one-sixth of the aggregate loss in labor income.

Presumably several factors are responsible for this inverse relationship, but we have investigated only one. The number of beneficiaries who exhaust their benefit rights before re-employment tends to vary directly with the severity of the recession. While some of these may be eligible for general assistance, the amount of the assistance grant typically is less than the unemployment benefit.

Daniel Creamer

CONSUMPTION AND PRODUCTION OF CONSUMER GOODS

In reworking the manuscript on "Consumption and Business Cycles, A Case Study: the Shoe, Leather, Hide Industry," certain mechanisms have come to the fore whereby acceleration of derived demand may be brought about. This acceleration takes the form of earlier turns and larger cyclical amplitude in retailers' or manufacturers' orders for materials relative to sales to the consumer. The amplitude aspect of the acceleration process may be passed over in this brief report in favor of the more interesting and subtle timing accelerators.

The Stock-Objective Timing Accelerator. The first mechanism presupposes the existence of a reasonably precise and firmly held inventory objective, a policy carried out by alteration in short-term orders rather than by flexible selling prices. It depends further on the inability to foretell requirements with precision, although at least a substantial portion of total orders must be placed several months before the merchandise will ordinarily be required. This means that advance orders are written on the basis of a guess about future sales, the character of which yields the distinctive pattern of acceleration: in constructing the guess, there seems to be a tendency to rely heavily on the current level of sales, or the level of the corresponding month of the previous year adjusted perhaps for the amount that sales have recently been "going ahead" or "falling behind." This means that errors in advance provision of merchandise tend to have a pattern opposite to that of changes in sales between the order and requirement dates.

Faulty guesses result in unintended inventory change which, if intentions are strongly held, and only then, will be corrected (or prevented by serial revision of guesses). Short-term orders are designed, among other things, to achieve this end. In view of the characteristic pattern of sales proper, these corrective orders, which reverse the pattern of error and thus tend to simulate short-term changes in sales, have a tendency to lead.

The lead of corrective orders is important in and of itself. These purchases for immediate delivery form a large part of the business done by shoe wholesalers and in-stock departments of shoe manufacturers; their pattern is therefore known and reacted to by others. Note that the lead depends on the firmness and precision of the stock-objective (as well as the other factors mentioned) not on its link to sales. But whether or not corrective orders will impart their lead to *total* orders depends on the stock size-objective. For if it is believed desirable for stocks to increase, say, twice as much as sales — an incremental stock-sales ratio of 2 — then total orders will be current sales plus three times corrective orders: once to return stocks to a planned invariant figure and twice more to raise it by twice the increase in sales. But it would operate in this general direction even though the objective were so loose as to be simply some sort of positive association between sales and stocks.

Actually, as far as I can judge, stipulated sales-stock ratios do tend to be only loose *post hoc* checks on management procedures and guides in planning, rather than tightly held buying objectives. This means that the effort to effectuate in the first instance a constant average or incremental sales-stock ratio would provide only a loose and lagging tie of orders to the rate of change in sales. Consequently, earlier turns at earlier stages are not likely to be brought about in this way unless sales retard consistently and sharply a long time before they turn — a condition which is seldom met.

Indeed, the conditions that I have stipulated as essential to the stock-objective *timing* accelerator (and this would not apply to amplitude acceleration) are by no means general throughout industry. I find them primarily at the retail stage, where stocks are so large and so highly specified that their careful control is essential.

The "Market-Prospect" Timing Accelerator. When retailers expect deliveries to slow up, selections to tighten, and prices to rise (and it is notable that all these things typically occur together), they try to increase the number of weeks' supply they have on order. When markets slacken, they return to a "hand-to-mouth" position. There seems to be a tendency for the buying associated with this alternating extension and contraction of market position to reach peaks and troughs in advance of retail sales.

At least two sorts of factors contribute to the early turns. First, the observations and experiences on which judgments about future market conditions rest tend to be sensitive precursors of shifts in market sentiment. Second, both extension and contraction of the market position have natural limits which are approached only against increasing resistance. Consequently investment or disinvestment in stocks on hand and on order slackens as these limits are approached.

Here again I have learned that it is important to realize that the accelerating mechanism is only present under conditions that are far from universal. It seems, for example, to be much more important in the leather buying of shoe manufacturers than in the hide buying of tanners. Also the two major motives for extending market positions — countering lengthening deliveries and restricted selections, or forestalling a rise in cost — though typically both present in any situation, shift their relative importance at different stages.

A *Technical Paper,* "Factors Influencing Consumption: An Experimental Analysis of Shoe Buying," has been completed and is about to be submitted to the Directors.

Ruth P. Mack

INVESTMENT IN INDUSTRIAL EQUIPMENT

Work on this study of industrial equipment has proceeded in three directions: checking and revising the estimates of investment outlays included in my paper for the Conference on Regularization of Business Investment; bringing up to date and extending our collection of time series on orders for industrial equipment; and compiling materials on the investment behavior of individual firms.

In a field like investment, which has only in recent years won the widespread attention it deserves, one is prepared to contend with a shortage of critical types of information. In the revision of my Conference paper, however, the chief problems arise from a special sort of plethora — the existence of alternative series purporting to measure the same phenomena. Whether an investigator deals with the public or the private economy, with the whole of private business or with manufacturing, utilities, or agriculture, he is confronted with competitive estimates of capital expenditures, frequently founded on different concepts and nearly always based on different primary data. Our objective in tracking down differences and trying to achieve reconciliations has been to achieve reasonable confidence in our substantive findings and to distinguish these from accidents of technique and synthetic byproducts of interpolation. We have benefited particularly from improved estimates prepared

for the Capital Formation studies (see Section 2) covering fixed capital expenditures in railroads, electric utilities, and residential housing. We have also checked our inferences from current dollar magnitudes by putting together constant dollar estimates showing the breakdown of capital expenditures according to whether they serve public, institutional, business, or residential purposes. The revised paper shows few signs of this work; the principal substantive addition is a section on the importance of large firms in total business fixed capital expenditures.

The work on orders for industrial equipment is dictated by the importance ascribed to cyclical developments in the early stages of the investment process, and by the belief that the lag of actual investment behind commitments obscures essential facts about the timing of investment behavior near cyclical turning points. Our best and most comprehensive evidence on investment commitments is provided by construction contracts. On orders for industrial equipment, our principal series cover railroad equipment, machine tools and forging machinery, foundry equipment, industrial pumps, and electric industrial furnaces. Beyond this, we have compiled from United States Census and private trade sources the few series covering one or more business cycles that had so far been overlooked. The chief defect of such series is that orders reported reflect no certain percentage of total orders, and there are, therefore, no correction factors by which to adjust the series to a consistent level. A further defect is that the data are largely for general purpose industrial equipment, such as electric motors and generators, conveying machinery, etc., which are used in many different industries; thus it is next to impossible to relate these orders in a straightforward way to any of the demand factors, such as final output, stock of equipment, profit experience, etc., to which their variations might be traced.

With the completion of this phase of our work, we shall have brought together most of the readily available time series on aggregate investment in productive plant and equipment. They cover stocks of industrial equipment, output (i.e., additions to the stock) by principal types, gross outlays on plant and equipment by various industries, construction contracts and equipment orders, and employment and payrolls in the equipment producing trades. While working up and organizing these materials, we have been looking beyond them, particularly in the direction of evidence provided by the balance sheets and operating statements of individual firms. I have concluded, however, that it would be wise to pause at this stage to prepare a manuscript on what we learn about the cyclical behavior of industrial equipment from time series of the sort listed above, and to suggest further questions to which they give rise that

might reasonably be answered by a study of the investment behavior of individual firms.

This manuscript will attempt to describe the distinctive behavior of the output and acquisition of industrial equipment during business cycles, appraise the contribution of this output to the severity of business cycles, and indicate the main sources of diversity in equipment behavior when aggregates are dissolved into some of their more obvious components. We hope also to identify some of the factors influencing investment commitments and trace the interrelations of events at successive stages of the investment process.

Millard Hastay

COSTS AND PROFITS

Among the factors that affect the profits of an industry is the relation between the prices it receives for its products and the prices it pays for raw materials. It has sometimes been assumed that if the prices an industry pays for its raw material rise, and the prices it receives for its products fail to rise in proportion, its profits must suffer. Such a profit squeeze is not a logically inevitable consequence, for various reasons, but the facts of the matter have remained largely unsettled. A squeeze is most plausible in an industry like meat packing, where the cost of raw material is an unusually large proportion of the value of products. On an annual basis, profit figures covering a large fraction of this industry are available since 1914. We therefore constructed an index of the relative price of meat for the same period, taking the Bureau of Labor Statistics index of wholesale meat prices as the numerator and the BLS index of wholesale livestock prices as the denominator. If the relative prices of meat and livestock control profits, the latter should rise and fall with the relative price index. In fact there was little correlation between the two, and what little there was appeared to be negative. Even in this industry, the ratio of prices received to prices paid is not a sufficient guide to the course of profits; the absolute level of prices, the volume of business, wage rates, and other factors must also be considered.

When changes in profits are compared, industry by industry and cycle by cycle, some evidence of the influence of differential price changes emerges. From 1919 to 1920, profits decreased in most industries. The profits of 18 industrial groups producing building materials, however, increased, despite a decline in the physical volume of building; prices of such materials increased much more than other prices. From 1920 to 1921, the profits of most industries again diminished; but the profits of 13 industrial groups processing or distributing farm products rose. In

this contraction of business, the decline in farm prices was particularly severe in comparison with the decline in the retail prices of foods and apparel. Although, as noted above, such a differential change in prices does not guarantee an increase in profits, it apparently contributed toward that result in these instances.

While price relations, physical volume, and other factors that we have investigated influence profits, the latter in turn affect personal incomes and investment. From published earnings reports and balance sheets it is now possible, for some large corporations over a fairly extended period, to trace the disposition of profits quarter by quarter — to see how they are used from time to time to pay dividends, to buy plant and equipment, to build up inventories, or to improve a company's financial position (i.e., to accumulate cash and marketable securities, pay off debt, etc.). We have accumulated such profit-and-disposition histories for several companies. The data suggest very little *short-run* relation between profits on the one hand and dividends or physical investment on the other. Often the immediate effect of a rise in profits is simply to improve the financial position and the immediate effect of a fall is to impair it.

The data, especially those for automobile companies, illustrate how prospective profits, rather than currently realized profits, are at times the dominating factor in business decisions. Thus the profits of the country's largest automobile manufacturer were fairly stable in 1945 and were depressed during most of 1946. But the company sharply increased its rate of expenditure on plant and equipment during this period; obviously the management anticipated a large and profitable postwar market for its peacetime products. As these expectations were fulfilled, profits increased rapidly up to the second quarter of 1950; meanwhile, after 1946, the trend of plant and equipment outlays was downward.

Recent annual data for the railroads illustrate in a somewhat different manner how the response of management to profits varies with circumstances. Profits increased rapidly during the war, but they were used largely to improve liquidity or pay off debt. Traffic and profits averaged lower in 1946-51 than in 1942-45, but outlays for plant and equipment were much higher; they were financed in part out of the pecuniary assets built up during the war. Governmental priorities restricted outlays in the war years; after the war, opportunities to reduce cost stimulated higher outlays in spite of the reduced current level of earnings.

We resumed the collection of data on common stock prices. The proximate object of this work is to indicate how buyers and sellers of securities reacted to the diversities in profit experience of individual corporations described in *Occasional Paper 32*. The new data will enable

us to extend through 1938 our preliminary study of such reactions in 1920-26, and to include many more companies.

Thor Hultgren

FOREIGN TRADE

Wesley Mitchell observed in *What Happens during Business Cycles* that before 1914 the value of American exports had a decidedly irregular relation to business cycles, but that since then they had conformed well (p. 275n.). How should we interpret this recent conformity? How can we explain the earlier independent movements of exports? During the summer I studied possible approaches to these questions and concluded that major preparatory work is necessary. Fluctuations in value must be distinguishable from those in quantity. Therefore a quarterly index of export prices from the 1870's or 1880's to the present is needed, and Robert Lipsey is undertaking to prepare one (see Section 6). Further, we must be able to analyze the influence of foreign business cycles on American exports, and to do this it may be helpful to develop a concept of a composite foreign business cycle.

An experiment with a crude concept of a foreign cycle, based solely on the National Bureau's business cycle chronology for Great Britain, France, and Germany gave promising results. For instance, from 1879 to 1914 United States exports rose on the average almost exactly as much when domestic business declined as when it expanded. But when we separate expansions and contractions that coincided with like phases in Great Britain, France, and Germany from those that did not coincide, we find the following very different export amplitudes.

Cycle Phase in		*Average*
United States	*Foreign Countries*	*Percentage Change in U. S. Exports, Value, 1879-1914*
Contraction	Expansion	+15.1
Expansion	Expansion	+11.7
Contraction	Contraction	+0.2
Expansion	Contraction	−3.5

These results suggest that foreign fluctuations were more important factors in determining exports than domestic cycles.

Of course, these results, however reasonable, are subject to qualification in view of the crudity of the method. They serve here only to indicate what may be expected from the development and use of a composite foreign cycle.

Ilse Mintz

HARVEST CYCLES

In the process of revising my manuscript, I have re-organized the text and have brought the materials to a more recent date. One of the most interesting facts brought out by analysis of recent data is the shift in the trend of average yield of crops per acre in the United States, and in the influence of yields upon output. For many years, while aggregate crop acreage was expanding, its trend dominated the trend in aggregate crop production, whereas short-run fluctuations in yields per acre dominated the short-run fluctuations in output. But in the last fifteen or twenty years, yields per acre have become an important determinant of both long-run and short-run movements in output. The accompanying decade rates of change show this transformation with respect to trend.

Percentage Change between Three-Year Averages One Decade Apart

	Acreage		Average Yield per Acre		Output	
	12 crops	"All" crops	12 crops	"All" crops	12 crops	"All" crops
1870-80	+59		−2		+55	
1880-90	+29		+8		+40	
1890-1900	+20		−5		+14	
1900-10	+10		+4		+15	
1910-20	+12	+11	0	+1	+12	+11
1920-30	+2	+3	−3	+2	−2	+4
1930-40	−13	−4	+16	+11	+1	+7
1940-50		+3		+17		+20

I believe the rapid upward trend in yields in recent years reflects mainly the improved economic position of the farmer and the resulting use of more and better equipment, more fertilizer, better seed, etc. It is especially significant in what it implies about the methods of agricultural production control adopted in the thirties, since these operated mainly by adjustment of acreage.

Another finding is that the relation of crop production to business cycles has become more systematic during the historical period we cover. During 1867-96, a comprehensive index of crop production conformed positively (i.e., moved in positive rather than inverse relation) to business cycles in only 3 instances out of 13; during 1895-1920, it conformed positively in only 5 instances out of 13; but during 1919-49 it conformed positively in 12 instances out of 13. It appears that the relatively high level of conformity in recent decades is attributable more to the behavior of average crop production per acre than to aggregate acreage.

Tentatively we conclude that business cycles have come to exert a more powerful (though still far from dominant) influence upon crop production, and that this is effected largely through such control as the farmer has over yields per acre. The increasing use of fertilizers, machinery, and other items that involve large cash outlays and directly affect yields has operated in this direction. Although there is evidence that farmers "respond" to business cycles by shifting acreage among crops, these shifts tend to cancel out in the aggregate; not so with yields per acre. In any event, the evidence seems to put a heavy burden of proof upon those who believe that farmers make a special effort to increase output during depressions, via either acreage or yield changes. Furthermore, it is not easy to reconcile the shift toward a more systematic relation between output and business cycles with the notion that crop fluctuations have played a systematic causal role in business cycles; for one would expect this role to decline, not increase, as the size of the agricultural sector relative to the whole economy has diminished. The causal connection has probably worked mainly in the other direction.

Geoffrey H. Moore

OTHER STUDIES

Milton Friedman's study of the money and banking sector has continued along the lines noted in previous reports. In addition, with the assistance of Anna J. Schwartz, he has begun to construct new estimates of the various components of the total money supply during 1860-90.

Bert G. Hickman has prepared drafts of two manuscripts: one on the comparative behavior of the economy in wartime and in peacetime business cycles, the other on developments since the start of the Korean War considered in the light of experience during World Wars I and II. John Firestone has resumed work on his study of the cyclical behavior of governmental revenues. Lawrence Klein is revising his manuscripts on consumer expenditure and savings patterns and on railroad transport services. Oskar Morgenstern, with the assistance of Edward Marcus, is revising his manuscript on international financial transactions and business cycles.

A detailed account of governmental attempts to deal with price fluctuations is contained in the manuscript by Waldo E. Fisher and Charles M. James, "Government Price Fixing in the Bituminous Coal Industry"; the authors' revision of this manuscript is expected to be completed in 1953.

Thor Hultgren's manuscript, "Transport and the State of Trade in Britain," has been submitted to the Directors. Two publications are in press: *Technical Paper 8,* "A Study of Aggregate Consumpton Functions," by Robert Ferber, and a conference proceedings volume, *Conference on Regularization of Business Investment.* James A. Maxwell's *Federal Grants and the Business Cycle* was published in May.

Gerhard Bry's study of German wages under varying business conditions is reported in Section 3. Some of the studies of banking and finance and of fiscal questions, reported in Sections 4 and 5, deal with certain aspects of business cycles.

2 National Income and Capital Formation

CAPITAL FORMATION AND FINANCING IN THE UNITED STATES

This project was initiated in 1950 under a grant from the Life Insurance Association of America. It includes a number of studies, for which separate reports follow.

Agriculture

Work during 1952 consisted of refinement and extension of the various basic series we developed in 1951, and analysis of the growth indicated by our data. A proposed *Occasional Paper,* "The Growth of Physical Capital in Agriculture, 1870-1950," was prepared. The release of 1950 Census data permitted revision of earlier estimates for that year, and some for 1945 as well. It also made possible some estimates that had been postponed pending the release of pertinent census data. Another task completed was the development and application of a method of estimating constant-price values of farm real estate which we believe yields better results than were previously obtained. Despite such refinements, the estimates that follow are subject to a margin of error that is inescapable in view of the difficulties inherent in the development of reliable and comparable data covering eight decades. A description of the sources of basic data and of the methods of estimation, and a consideration of the extent of error in some of the major results will be published in the *Occasional Paper* or in the monograph that is to follow.

For the United States as a whole the scale of farming changed very little from 1870 to 1940, when measured by real investment per farm. At 1910-14 prices, the value of physical assets per farm (including land) was $7,428 in 1870 and $7,967 in 1940, an increase of only 7

per cent in 70 years.[1] In some regions, notably in the South and in the Pacific States, the scale of farming declined during most of this period. After 1940, however, the constant-price value of physical assets per farm rose rapidly to $9,976 in 1950. The trend in all regions was now strongly toward larger and better equipped farms.

In contrast to the small rise in the constant-price value of capital per farm from 1870 to 1940, capital per person engaged in farming rose from $2,884 in 1870 to $5,301 in 1940, or 84 per cent. Moreover, increases occurred in every region except the Pacific. Between 1940 and 1950 the constant-price value of capital per farm worker rose to $7,775, or 47 per cent. In every region the increase during this decade was far greater than had occurred in any other decade.

The trend in the ratio of physical farm capital to real gross farm income or output was unmistakably downward throughout the 80-year period, despite occasional deviations from trend in the ratios for individual census years. As the accompanying table shows, the decline was especially sharp after 1920.

RELATION OF PHYSICAL FARM CAPITAL TO AVERAGE GROSS FARM INCOME, BOTH IN 1910-14 PRICES, UNITED STATES, 1870-1950

Year	Physical Farm Capital	5-Year Average Gross Farm Income*	Ratio of Physical Farm Capital to Average Gross Farm Income
	(million dollars)		
1870	19,758	2,392	8.26
1880	27,765	3,542	7.85
1890	33,707	4,400	7.66
1900	40,340	5,748	7.02
1910	45,367	6,313	7.19
1920	49,842	6,973	7.15
1925	48,013	7,412	6.48
1930	49,160	8,507	5.78
1935	47,178	7,507	6.28
1940	48,572	9,633	5.04
1945	51,376	11,388	4.51
1950	53,693	11,670	4.60

* The figure for 1870 is a 3-year average.

[1] If the number of cropper-operated farms in the South in 1940 are excluded from the number for which the average investment is calculated, the average for the United States is $8,743, an amount 18 per cent higher than in 1870. Whether this exclusion improves comparability in the number of farms is a moot question.

Indeed, while capital per worker rose impressively throughout the 80-year period in all regions except the Pacific, the capital-product ratio everywhere declined. Apparently technological changes caused production on farms to rise faster than capital as well as labor.

The main tasks that remain for 1953 are (1) analysis of the growth of financial assets of farmers, (2) study of the sources of funds that made possible the growth of farm capital, and (3) analysis of the factors that have influenced the growth of farm capital. The conclusions should provide some indications of the future capital requirements of agriculture.

Alvin S. Tostlebe

Mining

A draft of an *Occasional Paper* on "Capital and Output Trends in the United States Mining Industries" was submitted at the end of the year. The first section of the paper describes the growth of physical output and capital (the latter measured by tangible assets adjusted to a constant-price basis) and determines the past trends in the ratio between the two in the major mining industries. The second section analyzes the factors that have shaped this ratio in bituminous coal mining and appraises this industry's prospective capital requirements.

The first section includes the following findings, among others:

1. From 1880 to 1910 mining output grew faster than both the real national product and manufacturing output; since then, however, the reverse has been true.

2. In each industry, capital per unit of product rose for a time, then declined. The turning points for the different industries came between 1909 and 1929, but were concentrated around 1919. The period in which capital per unit of mining output rose thus coincides with the period of rising mineral requirements per unit of product for industry as a whole, while the period of capital-saving developments in mining coincides with the period of mineral-saving developments in industry at large.

3. Shifts in the relative importance of individual mining industries have tended to increase the average capital-product ratio in mining as a whole. The increase in the latter up to 1919 was, therefore, due partially to these shifts, while the decline after 1919 has taken place in spite of them. Indeed, had the capital-output ratios for each industry remained unchanged between 1919 and 1947, and had the shifts in the relative importance of the several mining industries taken place

nevertheless, the stock of real capital in mining in 1947 would have been almost three times as high as it actually was in that year.

In the near future we shall round out our study of capital growth with an analysis of the types and sources of funds with which capital expansion was financed.

Israel Borenstein

Manufacturing

A draft of an *Occasional Paper* on "Capital and Output Trends in Manufacturing Industries 1880-1948" has been prepared. The essential finding is that during the first half of the 70-year period the production of a dollar of factory output was associated with ever larger amounts of capital (defined as the sum of net fixed capital and working capital reported in balance sheets) — both expressed in constant prices. During the second part of this period the production of a dollar of output was associated with ever smaller amounts of capital. Both the upward and downward movements in these capital-output ratios have been substantial and this pattern has characterized most of the industry groups that can be distinguished within manufacturing. Further, the ratio to output of the two broad components of total assets, fixed and working capital, each followed much the same course as the total capital-output ratio.

Two other results may be mentioned. One relates to the fact that in 1937 and 1947, according to the computations of Stanley S. Schor in an unpublished dissertation at the University of Pennsylvania, the fixed capital-output ratio tends to rise with the size of firm (measured by assets), and there are good reasons for believing that this correlation has existed throughout the 70-year period. Fragmentary evidence also suggests that there has been a trend toward large manufacturing firms. Among the factors that brought about rising capital-output ratios between 1880 and 1919, therefore, was a shift toward large firms. However, the falling capital-output ratios after 1919 occurred despite a continued (though less pronounced) shift toward large firms.

The other finding relates to the growth of capital (in 1929 prices) in manufacturing. While its rate of growth has generally declined since 1880, there have been alternating periods of relatively high and low rates of growth. The timing of these long swings coincides roughly with the timing of long swings in the rate of growth in gross national product per capita.

Daniel Creamer

Transportation and Public Utilities

In our study of capital formation by utilities, we have focused attention upon four individual industries: railroads, electric light and power, local transportation, and telephones. Statistical series on capital formation from about 1870 or 1880 to 1950 were completed for each of these groups. In addition, widely spaced benchmark figures were constructed for all utilities and transportation industries combined. The groups selected for special study accounted for 90 per cent of the annual investment by all utilities and transportation in the 1880's, and for about 70 per cent in the 1940's. In turn, all utilities and transportation accounted for about 35 per cent of the nation's total private domestic capital formation in 1880-89 and for somewhat more than 25 per cent in 1940-49.

For the selected utility groups, data on sources and uses of funds in the period covered by our study have also been compiled.

Analysis of the statistics has been confined thus far to steam railroads. Some of the results of this study have been embodied in a proposed *Occasional Paper,* "Trends and Cycles in Capital Formation by U. S. Railroads, 1870-1950." This study revealed that the rate of expansion of railroad capital diminished from the earliest year — 1870 — covered by our data. The peak of the total stock of road and equipment was reached at the end of 1930, when the aggregate value in 1929 prices was $24 billion. In the next twenty years there was a modest net decline.

For an explanation of this behavior we must go beyond changes in the level of railroad traffic, for in the years before World War I railroad output did not expand at the decreasing rate characteristic of railroad capital. Important factors in the pre-World War I period, reflecting technological as well as other influences, tended over time to reduce the quantity of investment required to provide a given increase in output. Only in subsequent years did these factors and output work in the same direction: the impact of technological change upon the current flow of investment was powerfully reinforced by the growing competition of other forms of transportation and the concomitant leveling out of railroad traffic.

Net capital formation in the period 1919-50, taken as a whole, was small compared to the swift accumulation of earlier years. However, the flow of gross investment remained at a substantial level, for the huge dimensions reached by the entire stock of road and equipment brought with it large replacement requirements. Capital consumption in the decade of the forties alone was as great as the entire net investment

made in the railroads during the years 1870-90, when expansion was at its peak.

In the earliest decade covered in the study, capital requirements were financed primarily by the sale of stocks and bonds. From the first, however, there was evidence of a long-term trend toward internal financing. By the 1940's most purchases of equipment and outlays on road maintenance were paid for out of earnings or depreciation charges.

Melville J. Ulmer

Residential Real Estate

Work in 1952 resulted in (a) completion of new estimates of nonfarm residential construction for 1889-1929, derived from WPA tabulations of building permit data; (b) drafting of some of the analytical chapters of a forthcoming monograph on real capital formation in this field, 1889-1950; and (c) completion of the chapters on capital funds used in residential construction.

The new estimates, linked to the official data for the later decades, provide a sounder basis for trend analysis. In comparison with previous aggregate series, they show a somewhat larger number of nonfarm dwelling units started in the 1890-99 decade, a somewhat smaller number for the 1900-09 and 1910-19 decades, and an earlier pre-World War I peak (1905) in starts. Also, expenditures in current dollars for housekeeping residential construction in the 1900-09 decade are higher than the single existing aggregate series indicated and, again, the pre-World War I peak in such expenditures appears earlier (1909).

Findings with respect to real capital formation may be summarized as follows:

1. Three periods may be marked off by major peaks in nonfarm residential construction during the sixty years, 1890-1950. These periods are: 1887-1905, 1905-25, and 1925-50 (tentative).

2. The outstanding pattern is the large increase from the first to the second period in average annual volume of residential construction, as measured by dwelling unit starts and construction expenditures in 1929 prices, and the slight rise or even decline from the second to the third period. Net capital formation in constant prices increased slightly from the first to the second period and dropped sharply to the third period.

3. There has been a significant increase in amplitude of the long swings, possibly influenced by the two world wars associated with the second and third cycle.

4. The long swings clearly characterize housekeeping construction. Expenditures for nonhousekeeping residential facilities show less evidence of such swings.

5. There has been a decline since the twenties in the ratio of expenditures for nonhousekeeping to expenditures for housekeeping construction. The growth of relatively inexpensive facilities, such as motels, tourist cabins, and vacation cottages, has been more than offset by the decline in the volume of expensive hotel construction which had dominated this group previously.

6. The data also reveal a striking change in the "structure-mix" of dwelling unit starts. The proportion of single-family houses declined almost continually during the first three decades of this century. Since about 1930 the movement has been in the opposite direction, largely associated with the "suburban push."

7. The ratios of residential construction to gross national product and gross capital formation have shown a marked downward tendency over the sixty-year period, with a temporary rise during the twenties. In this, as well as many other series developed in the study, the twenties emerge as a "bulge" in the trend lines. The frequent use in this field of the record of the twenties as a yardstick becomes questionable against the historical perspective.

In a chapter on the long-term relationships between population growth and the increase in the number of dwelling units, we conclude tentatively:

1. About four-fifths of the net increase in occupied dwelling units in the last half-century can be attributed to population growth, and about one-fifth to increase in number of households per capita.

2. Regional shares in new nonfarm construction since 1920 correspond to the regional shares in nonfarm population and household growth for each decade. Interregional migration apparently has not yet significantly raised the number of additional dwelling units over and above the volume evoked by population growth and declining household size.

Analysis of capital funds begins with the growth of the nonfarm residential mortgage debt:

1. The residential mortgage debt increased twenty-five fold between 1890 and 1950. Between 1890 and 1920 and again between 1930 and 1945 it rose less rapidly than gross national product. Between 1920 and 1930 and after 1945 the mortgage debt rose more rapidly than gross national product.

2. The ratio of residential mortgage debt outstanding to disposable income in 1950 was substantially below the 40 per cent reached in 1930.

3. Debt has shown an upward trend compared to the value of residential real estate. It was 12 per cent of value at the beginning of this century and 20 per cent in 1925. It reached a peak of 36 per cent in 1932 and stood at 24 per cent in 1950.

4. As to sources of mortgage funds, the outstanding trend is toward institutionalization of the residential mortgage debt. Institutions at the end of 1950 held nearly 80 per cent of the outstanding debt, compared with less than 50 per cent in 1900. Although savings and loan associations have been the most important institutional mortgagees since 1920, the share of the debt held by life insurance companies and commercial banks has increased since 1900 and particularly since the middle 1930's. The relative importance of mutual savings banks, on the other hand, has been declining since 1912.

5. Analysis of long-term changes in the cost and terms of mortgage financing reveals broad conformity in movement of bond yields and mortgage interest rates. Geographic differentials in cost and terms of mortgage financing have narrowed considerably. The effect of lower interest rates on carrying charges since the twenties has been partly offset by more general adoption of amortized loans.

The role of federal government aids in private residential construction is the subject of two chapters which have been published as an *Occasional Paper*. A *Technical Paper* on the new estimates of residential construction for the decades before 1920 has been submitted by my associate, David M. Blank.

Leo Grebler

Nonprofit Institutions

We have completed estimates of the wealth held by seven types of private nonprofit institution (religious bodies, educational institutions, hospitals, benevolent institutions, community trusts, foundations, and labor unions). These estimates are presented together with an analysis of the trends in a proposed *Occasional Paper,* "Private Nonprofit Capital in the United States, 1890-1948." Our major findings may be summarized as follows:

1. The gross value of physical and financial assets held by the seven private nonprofit groups represented about 2.5 per cent of the national wealth in 1910 and roughly 4.1 per cent in 1948.

2. In 1910, religious, educational, and hospital wealth, taken together, represented nearly 82 per cent of the total assets of the seven nonprofit groups. In 1948, this share was 72 per cent.

3. During the period 1890-1948, the share of the nation's total real reproducible capital (buildings and equipment in 1929 prices) held by churches declined. The share of private schools and private hospitals rose. For all three groups combined the share remained fairly constant at around 2.3 per cent.

4. A factor shaping the growth of private educational and hospital capital has been the expanding role of government in these two fields.

5. The trends in reproducible capital per church member, per student, and per patient have in each case gone through a rising phase, then a declining one.

Robert Rude

Government

During the year a draft of a proposed *Occasional Paper,* "What is a Federal Deficit?" was prepared, a work memorandum on "Federal Financing, 1929 to 1940" completed, and materials on federal fiscal operations and financing since 1940 assembled and partially analyzed.

The memorandum on the 1930's follows the plan previously adopted for the government sector. It is an historical analysis of fiscal developments that relates federal nonfinancial receipts and expenditures to changes in debts, portfolios, and the general fund balance.

The paper on the federal deficit argues that no one definition of deficit (or surplus) can adequately serve all purposes under present conditions, but that two deficit (or surplus) computations meet the major needs. These are the budget computations and a computation that takes account of all federal nondebt, noncredit transactions — a consolidated, nonfinancial computation. The budget computation serves as a major guide in the consideration of tax and appropriation bills and the formulation of policy toward total federal debt. The gradual development of the present form of budget computation is traced, and suggestions for its further improvement are offered. It is compared with two other computations currently published by the government, "net cash operating outgo" and "deficit on national income and product transactions." Several suggestions are offered also for the latter two computations. Neither of them is very satisfactory for showing the impact of fiscal operations on other sectors of the economy or as a measure of federal financial capital requirements. It is to serve both these objectives that the consolidated nonfinancial computation is proposed (approximately what is called a "cash deficit" figure). Estimates of the nonfinancial deficit (or surplus) are used to trace the development of fiscal operations into a major economic influence during the past sixty years and to analyze recent broad changes in the factors that give rise to federal capital requirements.

The monograph relating the historical findings to the problem of making projections will emphasize (a) the need to consider the financial capital requirements of all levels of government conjointly, (b) the dominating importance of national security and counter-cyclical expenditure programs, and (c) the secular growth of government functions. Attention will be given to various special considerations affecting government capital requirements including federal credit activities, social insurance programs, and budgetary control techniques; also to the somewhat erratic relationship between governmental capital formation and government financial capital requirements.

Morris A. Copeland

Foreign Demand for Capital

With the onset of the Great Depression of the 1930's, the flow of private long-term capital from the United States to foreign parts came to a rather abrupt halt. During the next fifteen years, the story of our investment abroad was largely one of write-off, write-down, and repatriation. Only with the end of World War II did private capital export begin to revive and new investments substantially exceed liquidations. But even this revival, though it led to an export during the six years, 1947-52, of over $5 billion of capital, failed to reach the annual rate of the middle 1920's. We cannot say, therefore, that the upward secular trend in capital exports, which stands out so clearly in the record between the Civil War and the 1920's, has been resumed. Indeed, if account is taken of price changes, the recent rate of private capital export is definitely below the level it attained during the 1920's. Yet the United States today has a bigger population, higher income, and larger volume of savings than it did twenty-five years ago.

My problem during the coming year is to extract the meaning this experience has for us, as we look into the future and try to assess the prospects of foreign investment by the United States. Is the interruption to the flow of capital across our borders, though longer than other interruptions of the past, fundamentally like them; and like them, will it finally come to an end and the upward trend be resumed when confidence has sufficiently recovered? Or is the basic cause of the prolonged interruption to be found not in transient factors but in fundamental changes in the international economy heaped on one another by two world wars and an extraordinary worldwide depression, and must our view of the future be shaped largely by what we can learn of the new forces that have entered the scene?

Solomon Fabricant

Financial Intermediaries

Work on this project during 1952 was concentrated, apart from extending and revising the basic factual material, on preparation of an *Occasional Paper* on "The Share of Financial Intermediaries in National Wealth and National Assets." (For the purpose of this study financial intermediaries include the banking system, private and government insurance and pension funds, saving and loan associations, personal trust departments of banks and trust companies, government lending institutions, and a number of other groups of smaller size.) The main findings of this paper may be summarized as follows:

1. The usual ratio of the assets of financial intermediaries to national wealth is not an appropriate measure of the relative importance of the intermediaries because the numerator is a gross (unconsolidated) total and the denominator a net (consolidated) figure. To obtain a meaningful magnitude with which to compare the total assets of financial intermediaries it is necessary to prepare a national balance sheet on an unconsolidated basis. This permits derivation of a ratio between two commensurable magnitudes, total combined (unconsolidated) assets of financial intermediaries and of all economic units within the nation.

2. Thus computed, the share of financial intermediaries in national assets increased from about one-eighth in 1900, to one-sixth in 1929, to one-fourth in 1945. During the last few years the trend has been reversed: the total assets of financial intermediaries have grown but slowly, while the current value of national assets has risen substantially, in large part because of a sharp increase in the price level of tangible assets. As a result, the share of financial intermediaries in national assets today is slightly more than one-fifth.

The more familiar ratio of financial intermediaries' assets to national wealth is on a higher level but moves in the same way. From one-fifth in 1900 it rises to over one-third in 1929, increases further to approximately two-thirds in 1945, then falls back to about one-half in 1949.

3. The share of financial intermediaries differs greatly as between types of assets. It is very high (accounting in 1949 for 70 per cent or more of the total) for corporate bonds, state and local government bonds, mortgages, and U. S. government securities. The share is considerable (about two-fifths for preferred stock and nonmortgage) loans, modest (about one-fifth for common stock, and negligible) for tangible assets.

4. The share of financial intermediaries increased considerably between 1900 and 1949 for all types of assets except tangibles. The rise

was most pronounced in the case of corporate bonds and stocks. It was much less marked in mortgage and nonmortgage loans and negligible in the case of government securities, where the proportion was already very high in 1900. Probably the most important aspect of these movements is the marked increase in the role of financial intermediaries in long-term external financing of business enterprises.

5. As a result of considerable differences in the rate of growth of the various types of financial intermediaries during the last fifty years, the share of commercial and savings banks in the total assets of all intermediaries declined from approximately two-thirds to two-fifths, while that of insurance organizations rose from one-seventh to one-fourth. A second important change is the increasing share of publicly owned financial intermediaries, even if the Federal Reserve Banks are excluded, from only 2 per cent up to 1929 to 13 per cent in 1949.

6. Pronounced changes have taken place in the composition of assets of financial intermediaries. The rise in holdings of U. S. government securities, from only a few per cent up to World War I to over 40 per cent of their total assets in 1949, stands out. The relative importance of corporate stock and consumer loans has likewise increased, although irregularly and as a rule slowly. Virtually all other assets have dropped in relative importance, the decline in the share in total assets being particularly pronounced for nonmortgage business loans, state and local government securities, corporate bonds, and tangible assets.

Raymond Goldsmith

General Studies

My work during the year continued under the two broad heads noted in last year's report: (a) exploration of the analytical problems that emerge in a study of the long-term trends in capital formation and financing, first on a countrywide scale and then as revealed in the studies dealing with the several industrial sectors of the economy; (b) revision, refinement, and extension of the countrywide estimates, taking advantage of new national series as well as of those produced in the several sector studies.

A paper completed in 1952 under the first head, "Factors in the Demand for Capital Funds," is included in a volume of papers to be published in 1953 by the S. S. Huebner Foundation at the University of Pennsylvania. Another paper explores the algebraic relations among gross capital formation, net capital formation, and the rate of growth in the national income on various assumptions, with specific reference to trends in the shares of internal and external financing of gross capital formation, under changing or constant price levels.

Under the second head, we report the revision of our estimates of national product and its components, annually back to 1919 and decennially back to 1869, utilizing recently revised estimates of construction and other items suggested by the special work in the several sector studies. This will call also for corresponding revision of the annual estimates back to 1869 (used in the form of moving averages) reported last year. Finally, we are planning to provide a breakdown of total construction by type, in the decennial series back to 1869; and an approximate industrial distribution of durable business capital formation (construction and producers' durables combined). These revisions and refinements should be completed in 1953.

Simon Kuznets

THE DISTRIBUTION OF INCOME AMONG OCCUPATIONAL GROUPS

In my exploratory work on this topic I have been concentrating on the factors underlying the change in the size distribution of incomes since the prewar period. This is of interest not only because it may contribute to the explanation of the striking decrease in inequality of income distribution, but also because the analysis helps answer other questions. Thus the data necessary to show what changes in income differentials between occupations have contributed to the decrease in inequality of income distribution for the population as a whole are also required to show the extent of differences in incomes among occupations at any one time. Similarly, other factors such as the sex, age, and educational composition of occupations are important not only as they relate to changes in the distribution but also because they condition average income levels within the various occupations at any given time.

The first part of the analysis was aimed at the change, between prewar and postwar years, in the size distribution of each main type of "earned" income. Wages and salaries, and also independent professional incomes, were more equally distributed in recent years than in the years before World War II. This is not true of incomes of farmers, or of proprietors other than farmers and professional persons.

In the second part of the analysis, the size distribution of wage and salary receipts of persons in each major occupational group in 1939 was compared with that for 1950. In each of the eight occupational groups examined, the distribution of wage and salary income showed a decline in inequality between 1939 and 1950. In addition, Lorenz curves of federal employees of executive agencies were also computed on the basis of annual pay equivalents in 1938 and 1950. Here again, the distribution of income was more unequal in the earlier year.

The exploratory results apparently indicate that the movement toward greater uniformity in income distribution has pervaded many sectors of the economy. Analysis of the factors important in accounting for income differences among occupations, and their changes over time, should throw further light upon the causes of change in the distribution of income.

Late in 1952 I accepted an appointment in the Research Division of the Federal Reserve Bank of Atlanta. Before my departure I prepared a memorandum reviewing the territory I was able to cover. The memorandum should provide an advanced base from which to continue the exploration.

Thomas R. Atkinson

OTHER STUDIES

Morris A. Copeland's *A Study of Moneyflows in the United States* and the Income Conference's *Studies in Income and Wealth, Volume Fifteen,* dealing with the size distribution and utilization of income, were published in December. Simon Kuznets' *Shares of Upper Income Groups in Income and Savings* was published in March 1953.

Other studies of income are reported by Creamer and Hultgren in Section 1 and by Wolman in Section 3; see also the note on Klein's study in Section 1. Other studies of investment are reported in Section 4; see also Hastay's report in Section 1 and the reference to Miss Hartland's study in Section 6. Conferences held or planned on income and related subjects are described in Part Two.

3 Wages, Employment and Productivity

BRITISH AND AMERICAN WAGES

In spite of the considerable differences in economic conditions of the two countries, it appears that wages in England since before the war increased as much as, if not more than, American wages. The following tabulation compares average hourly earnings in manufacturing:

England[1]	*United States*[2]
October 1938 = 100	1939 = 100
October 1946 = 202	1946 = 172
April 1952 = 299	October 1952 = 269

[1] *Ministry of Labour Gazette,* September 1952, p. 304.

[2] Hours and Earnings, *Industry Report,* Department of Labor, December 1952, p. 14.

Apparently the rise in England was greater during the war than in the United States; English wages advanced 102 per cent while American wages increased 72 per cent. Since 1946, however, the advance in England was 48 and in the United States 56 per cent.

The American figures are gross hourly earnings and, therefore, reflect changes in wage rates, premium pay for overtime, changes in output of incentive workers, shifts in employment, and other factors. Presumably the British data are of similar character.

It is impossible to construct for the United States a record of changes in pure wage rates. The Bureau of Labor Statistics does construct and publish estimates of manufacturing gross hourly earnings excluding some part of premium overtime payments. According to this measure these hourly earnings increased from 1939 to October 1952 by 159 per cent.

In both countries there was a large discrepancy between the movement of wage rates and hourly earnings in the period after 1939. An index-number of full-time weekly wage rates in England, constructed by Professor Bowley, shows that wage rates in manufacturing increased about 128 per cent from 1939 to 1952, while hourly earnings rose 199 per cent.[3]

Leo Wolman

TRENDS AND CYCLES IN GERMAN WAGES

The first draft of a manuscript on "Wages in Germany, 1871-1945" is completed. The book consists of six chapters: (1) The Economic Background, (2) Long-Term Wage Trends, (3) Trends in Wage Differentials, (4) Cyclical Fluctuations of Wages, (5) Wages During War and Inflation, and (6) Wage Behavior in Germany, Great Britain, and the United States. Money wages, wage-price relations, real wages and wage differentials are discussed in the appropriate chapters.

The behavior of German wages during the unusual years of hyperinflation (1922-23) and during the Hitler regime is of special interest. During both of these periods, though for different reasons, the position of German labor deteriorated drastically. By 1944 a considerable part of the gains in real hourly wage rates, made during the expansion of German industry since 1871, had been dissipated.

Wage differentials during the three-quarters of a century under observation tended to become smaller. While this trend is most con-

[3] A. L. Bowley, "Index-Numbers of Wage Rates and Cost of Living," *Journal of the Royal Statistical Society, Series A (General),* Vol. CXV, Part IV, 1952, p. 500.

spicuous in the case of skill differentials, it is also apparent in the narrowing of age, sex, regional, city-size, and industrial differentials. Scattered data suggest that there existed a similar general tendency in Great Britain and in the United States, at least in recent decades. (Relevant evidence on skill differentials in these countries was presented by Leo Wolman in last year's *Annual Report,* pages 43-4.)

The cyclical behavior of wages in the three countries shows important elements of similarity, examples being the long lags in wage rates behind turns in general business conditions, and the shorter lags and larger amplitudes of weekly earnings as compared with rates.

Gerhard Bry

THE LABOR FORCE

By September I expect to submit a revised manuscript on the behavior of the labor force under changing income and employment in five countries: the United States since 1820, with detailed analysis of the period from 1890; Great Britain since 1841, with particular attention to the period since 1911; Canada since 1911; New Zealand since 1896; and Germany since 1895. The following is a preliminary list of the chapters and appendices, with some indication of their content:

Chapter

1 The Problem of Labor Supply
2 The Concept and Measurement of the Labor Force (A detailed examination of the theoretical and actual coverage of labor force statistics in the five nations)
3 The Process of Standardization (An explanation of a device for taking account of variation in the structure of population, and an appraisal of its usefulness for analysis of labor force behavior)
4 The Labor Force and Incomes or Earnings in Different Cities, States, and Nations at the Same Time
5 Labor Force of Wives in Relation to Incomes of Husbands, by Income Groups in the Same Locality
6 Changes in Labor Force of Males: Five Countries
7 Changes in Labor Force of Females: Five Countries
8 Changes in Total Labor Force
9 The Labor Force in Great Depressions (Includes an examination of the "additional worker hypothesis")
10 The Labor Force in World War II: Mobilization and Peak
11 The Labor Force under Short-Run Economic Changes (Analysis of behavior of labor force under impact of variation in income, earnings, unemployment, armed forces, liquid assets, and consumer debt, as revealed by quarterly and annual data for the United States, Great Britain, and Canada)
12 Over-all Stability of the Labor Force Explained
13 Conclusions

Appendix

A The Labor Force by Age Group and Sex, Decennial Enumeration: Five Countries
B Labor Force, Employment, Unemployment, and Armed Forces; Annual and Quarterly Estimate: Four Countries
C Labor Force, Unemployed and Employed in Adult-Male Equivalents: Five Countries
D Adjustment of United States Labor Force and Population Used in Constructing Appendix A
E Rejection of Certain Adjustments of the United States Labor Force of 1930
F Earnings and Incomes: Five Countries
G Indexes of Living Cost Used in Adjusting to Real Income or Earnings

In the fall I plan to begin a paper on "Cyclical Changes in Unemployment and Employment" for the Universities-National Bureau Conference on Measurement and Behavior of Unemployment, to be held in 1954.

Clarence D. Long

PRODUCTION, EMPLOYMENT, AND PRODUCTIVITY

This project was initiated over a decade ago with the help of generous grants from The Maurice and Laura Falk Foundation of Pittsburgh. A substantial list of publications has already resulted; those published in 1952 include Frederick C. Mills' *Occasional Paper* on "Productivity and Economic Progress," and Solomon Fabricant's *The Trend of Government Activity in the United States since 1900.* Reports on the remaining studies follow.

Growth of the Service Industries

Other duties have slowed my progress in completing the survey of employment trends in the service industries. At present I am working on what may be called the "routine" service industries, that is, industries which provide services which the consumer may also provide for

himself. The industries being studied are domestic service, hotels and lodging places, laundries, cleaning and dyeing establishments, and beauty and barber shops. These industries employed more than 3.5 million persons in 1940.

Simon Kuznets' work on the share of income received by the upper 1 per cent of the population has permitted a fuller investigation of some factors influencing the employment of domestic servants. He provides, for the nation, annual estimates of the number of persons (income recipients and dependents) per tax return and the amount of economic income in relation to taxable income, by income classes. Applying these national ratios to the data available for each state, one may estimate the share of income received by the upper 1 per cent, by states. (The chief objection to this procedure is that states with community property laws are not treated separately.) With this measure of the inequality of income, a statistical analysis was made of variations among states in the employment of servants in 1940.

This analysis revealed that the wage level of servants was inversely and income inequality was positively related to the number of servants employed per 100 families; but the average level of income per family did not appear to influence employment of servants. This analysis carries forward the study presented in *Occasional Paper 24,* which contained no variable representing the distribution of income: there income turned out to be positively related to number of servants, presumably because of the association of income level with income inequality.

It is a plausible hypothesis that it is the inequality of the distribution of income, and not its average level, that influences the number of servants employed. There has been a strong secular decline in the number of servants relative to population in the last half-century, during which average income per family rose substantially; the inequality of income has probably fallen substantially, at least in the latter part of the period. Moreover, there is no clear relationship between numbers of servants and average family income among nations: there were relatively more servants in the 1930's in England, Germany, France, and Switzerland than in the United States, and some of the poorer countries (India, for example) have relatively many servants.

George J. Stigler

Employment and Productivity in Trade

To improve my estimates of distribution costs, I have prepared revised figures for 1869-1919 for (1) freight charges on finished commodities, and (2) the fraction of the flow of construction materials passing through retail channels. I also collected further descriptive material on changes in the structure of distribution since the Civil War. I have still to embody the results of the 1948 Census in my report on "Productivity and the Cost of Distribution since 1869," and to reorganize the manuscript in the light of comments made by the staff. I expect to complete this work and to submit a revised manuscript during 1953.

Harold Barger

Trends in Production and Productivity

Work continued during the year on the summary study of production and productivity. Selected materials relating to certain broad aspects of production and to the uses of productive resources over the last half century were included in *Occasional Paper 38,* "Productivity and Economic Progress," published in December. This study shows very great productivity gains in this period, and correspondingly substantial advances in total output and in consumption levels. Thus average annual expenditures on consumption goods and services, per capita of the population, increased from $316 (of 1929 purchasing power) in 1891-1900 to $769 in 1941-50. This is one direct index of the advance in the well-being of the population of the United States in these fifty years. Yet such statistical averages throw no light on the manner in which these economic gains were distributed. General observation suggests that they were widely shared, but more precise measurements of the incidence of the gains of these years is desired. At present we are doing exploratory work designed to throw light on the relative fortunes of different industries and of different productive agents, and to indicate some of the factors in these movements.

One of these factors consists of shifts in the "terms of exchange" of the products of an industry. If the selling prices of its products rise more than the prices of goods bought by the industry and of goods bought by factors of production in that industry (owners, employees creditors), the terms of exchange move favorably; if the ratio of prices received to prices paid declines, the movement is unfavorable. To get at some of these price changes, as well as for other purposes, we have expanded our index number of the prices of commodity groups at wholesale to include the large number of new commodities on which prices are now compiled by the Bureau of Labor Statistics. The new series have been tied to our earlier measures to give us continuous monthly indexes for our groups for the period beginning with November 1927. Annual measures for major groups go back to 1891.[4]

Frederick C. Mills

[4] Price indexes are now available, therefore, for the following commodity groups, among others, for which official indexes are not published: raw and slightly proc-

OTHER STUDIES

Daniel Creamer's investigation of cycles in personal income is reported in Section 1, and Thomas Atkinson's exploration into the distribution of income is described in Section 2. Reports on studies of growth of governmental employment in Great Britain and elsewhere, by Moses Abramovitz and by George Stigler, appear in Section 6.

4 Banking and Finance

FEDERAL LENDING, LOAN INSURANCE, AND LOAN GUARANTEES

This survey and appraisal of federal government activities in the credit market was initiated in 1950 under a grant from the Association of Reserve City Bankers. It covers not only the activities of agencies that are integral parts of our federal governmental structure, but also those of "federally-sponsored" agencies, that is, agencies connected with the government in some unusually close manner, such as the Federal Reserve Banks or the Federal Land Banks, though not integral parts of it. The full range of credit activity comes within the purview of the investigation: direct lending; insurance or guarantee of loans; and the few scattered instances of stock purchase in private or co-operative institutions.

Data on the amounts of credit outstanding or of loans insured or guaranteed, and of the volume of new activity in these fields have been gathered on every program that could be identified as relevant to our investigation — more than one hundred in number. These materials have been brought together in an *Occasional Paper,* "The Growth of Federal Lending, Loan Insurance and Guarantees," to be offered for publication during 1953. In addition to a summary of these data on outstandings and activity, the major report of the project will provide a contrast between the credit services offered by federal and federally-sponsored agencies and those of private financial institutions, review the experience of government as lender and insurer of credit risks, and consider the impact of federal credit activities on the private financial system and the economy generally.

The collaborators in the project report below on the sectors they are investigating.

R. J. Saulnier

essed materials, manufactured goods; producer goods, consumer goods; nondurable goods, durable goods; products of American farms (incl. raw and processed goods), all other commodities; construction materials, goods intended for human consumption, goods intended for use in capital equipment; forest products, farm crops, animal products, metals and metal products, nonmetallic minerals and products.

Business Credit

My efforts during 1952 have taken tangible form in several memoranda dealing with (1) the lending operations of the Reconstruction Finance Corporation since 1934, and (2) the effects of federal credit activities on business enterprises, business financing institutions, and on the economy generally.

Some of the tentative findings on the direct loans of the RFC to business enterprises are these:

1. While the direct lending operations of RFC have been as large as those of some of our largest commercial banks, RFC has served only 10-15 per cent of the national demand for business term loans since 1940.

2. RFC did not characteristically provide small loans to "small business"; a higher proportion of commercial bank term loans were of small-size and went to small enterprises. RFC was characteristically a medium-size business financing agency.

3. About one RFC direct loan in five and about half the funds disbursed went to firms which had borrowed previously from RFC. This suggests that a considerable part of RFC's operations was conducted with businesses that were not rapidly rehabilitated by the initial injections of federal funds and did not later prove their ability to obtain funds from private sources.

4. On the whole, RFC financed businesses whose financial condition was such as to make them "marginal" risks to commercial banks. About one in every ten loans terminated involved loss. At mid-1951 about 13 per cent of the 5,700 active loans on the books of RFC were delinquent in some respect, indicating a quality of portfolio much lower than that of commercial bank term loan portfolios.

On RFC participation loans, some of the findings are:

1. RFC participated with 2,018 commercial banks in making 5,965 business loans amounting to $828 millions between 1934 and mid-1947. Most of these loans involved a "deferred" commitment by RFC to purchase from the participating bank 75 per cent of the amount of each loan on demand by the bank.

2. The largest number of participation loans went to small-size firms,

but the largest dollar amount of participation credit was in large loans and went, presumably, to medium-size and large concerns.

3. In general, participating commercial banks were moderately large institutions, with national charters or Federal Reserve membership, located in medium and larger centers of population. Participation was not principally a small bank aid.

4. Legal limitation on the amounts of loans to single borrowers was one of the factors which caused banks to seek RFC participation; about one out of every four participation loans was apparently in an amount that exceeded the legal lending limit of the bank originating the loan.

Neil H. Jacoby

Agricultural Credit

The basic materials on federal lending in agriculture have been compiled and preliminary drafts of manuscripts on federal activities in the field of agricultural credit are nearing completion. The study covers the programs of the Federal Land Bank System, Production Credit System, Banks for Co-operatives, Rural Electrification Administration, and Farmers Home Administration. Also certain aspects of the lending programs carried out by the Commodity Credit Corporation are examined.

Our objectives have been (1) to describe the activities of the various federal and federally-sponsored farm credit agencies, (2) to appraise the experience of the federal farm credit programs, and (3) to determine the effects of the programs on the agricultural credit markets, on the price level, and on resource use and income in agriculture. Some of the findings under the first two categories may be briefly summarized as follows:

1. The federal government has developed a comprehensive system of credit programs providing agriculture with practically all types of credit, with the possible exception of intermediate credit on a 3- to 8-year term. The standardization of interest rates, amortization schedules, and equity requirements indicates that a nationwide agricultural credit market has been established. The government credit agencies generally have led the market in providing funds to agriculture. The federal land banks, for example, required less equity from borrowers in the 1930's than competing private and commercial lenders. In the postwar period, however, the reverse was the case. The formation of farmer-cooperatives was encouraged to provide credit services to farmers which would avoid permanent direct government lending.

2. Loss ratios of the federal farm credit agencies have been lower than expected, although experience has varied widely from program to program and among various parts of the country. Loss rates in all programs were substantially higher in the 1930's than in the 1940's. Some of the losses that have occurred are not directly comparable to losses of private lending institutions. For example, the loss record of the Commodity Credit Corporation in supporting farm prices has no counterpart in the private economy. The programs administered by the Farmers Home Administration involved significant elements of subsidy and were intended to serve only those farmers unable to obtain credit from other sources. The program of the Rural Electrification Administration was designed to be self-supporting but the program is too new to evaluate its experience with 35-year loans. The programs under the Farm Credit Administration, with the exception of the programs of the Federal Mortgage Corporation and Production Credit Corporations, have resulted in low loss records, more comparable with those of private lenders.

Harold G. Halcrow
George K. Brinegar

Urban Mortgage Credit

Analyses have been undertaken of the kind of services provided by federal agencies in the urban mortgage field, the experience of federal mortgage credit agencies as direct lenders and as insurers or guarantors of loans, and the impact of these activities on private mortgage lending institutions and the economy generally.

The description of services is based on an accumulation of primary materials developed under the Financial Research Program for its Urban Real Estate Finance Project and on a number of later investigations which make it possible to compare much more effectively than ever before the characteristics of the markets for insured and conventional mortgages. We find, for example, that federal agencies, both in direct lending and in the insurance and guarantee of mortgage loans, have tended to concentrate on the middle brackets of housing, leaving the conventional loan predominant both in the lower and higher ranges.

The experience of federal mortgage insurance agencies has been a favorable one, as might be expected in view of the favorable economic climate under which they have operated. Ratios of claims paid to notes or mortgages insured or guaranteed (cumulative to December 31, 1951 except for VA which is through October 25, 1952) have been held to very low levels in the several programs: 2.29 per cent in the case of FHA property improvement loans, 0.60 per cent on FHA insurance of home mortgages, 2.52 per cent on the insurance by FHA of so-called "project" loans, and 0.50 per cent for VA guarantees of home mortgage

loans. Direct lending agencies have had a substantially less favorable record, partly because the bulk of their lending was done while the economy was in deep depression and partly because they were often commissioned to undertake programs which, from the viewpoint of probable credit experience, were ill-starred from the beginning. The Home Owners' Loan Corporation, for example, was forced to foreclose nearly 20 per cent of the properties it refinanced during the early thirties, and the RFC Mortgage Company sustained losses that, in the case of loans on business properties, appear to have run to around 10 per cent of the amount loaned. Other programs, such as RFC Mortgage Company purchases of FHA-insured and VA-guaranteed home mortgage loans and purchases of similar mortgages by the Federal National Mortgage Association, have had much lower loss records.

The financial outcome of these credit operations, as reported by the agencies concerned, would indicate that they have, in general, been self-sustaining but their failure to include all costs in their published accounts makes it exceedingly difficult to determine whether this has actually been the case. It seems clear, however, that if the programs have been self-sustaining the profit margin must have been, on the whole, narrow and the accumulation of protective reserves meager in view of the hazards attaching to such activities.

Work continues on the effect of these programs on the volume of construction activity and the terms of financing.

R. J. Saulnier

BANK CAPITAL PROBLEMS

The capital position of commercial banks is unique among American business enterprises. They are currently reporting ratios of equity capital to total assets of less than 7 per cent, on the average, whereas many manufacturing and trade concerns have equity capital equal to 75 per cent of their total funds. Furthermore, the trend of bank capital ratios has been almost steadily downward for a considerable period of time, whereas capital positions have been roughly maintained or improved in other sectors of the economy. What are the underlying factors accounting for this trend? What are its implications? The present study, made possible by a grant from the Association of Reserve City Bankers, attempts to deal with these questions.

Our principal operations so far have been concerned with the collection of data, and have proceeded along two distinct lines. First, Albert Ehinger has brought together data on stock sales and income retention for commercial banks covering the last thirty years in the hope of deter-

under the auspices of the Universities-National Bureau Committee for Economic Research, was published.

For reports on the studies of capital formation and financing in the United States see Section 2.

5 Government Revenue, Expenditure, and Debt

THE INDIVIDUAL INCOME TAX

The proportion of the country's aggregate personal income that is reported on taxable federal income tax returns has increased radically since 1929. In that year less than one-third of the estimated total of individuals' (including fiduciaries') adjusted gross income, as defined by the tax law, was reported on taxable returns. In 1947, the proportion was nearly four-fifths. The total of taxable and nontaxable adjusted gross income in 1947 was about 2¼ times as large as in 1929, but the amount included on taxable returns was about 6 times as large, having risen from $23 billion to $136 billion.

Adjusted gross income under the tax law means the sum of the positive minus the sum of the negative components of taxable income.[1] It differs from statutory net income in that it is net income before the allowable *personal* deductions, such as those for contributions to philanthropic and scientific organizations, taxes and interest paid, casualty losses, and medical expenses. Because the amounts of such deductions vary among individuals with the uses they make of their incomes, adjusted gross income is closer than statutory net income to the everyday concept of personal income.

Personal income as estimated by the National Income Division of the Department of Commerce differs from the tax law definition of adjusted gross income because it excludes some components of taxable income and includes some nontaxable elements. In the appended table, covering the years 1929, 1933, 1939, and 1947, we supply the principal figures, some of them estimated by us, needed to show the relationships between total personal income (as estimated by the Department of Commerce) and adjusted gross income, and between the latter and statutory net income, surtax net income, and normal tax net income.

The nontaxable components of personal income in 1947 amounted

[1] Only the taxable proportions of realized long-term capital gains and losses are included in adjusted gross income.

INCOME ON TAXABLE INDIVIDUAL RETURNS IN RELATION TO TOTAL PERSONAL INCOME, SELECTED YEARS

		1929	*1933*	*1939*	*1947*
		(billions of dollars)			
1	Total personal income	85.1	46.6	72.6	191.0
2	Less nontaxable components	13.4	10.2	9.6	26.4
3	Add taxable income components excluded from personal income estimates	3.2	−1.5	0.6	7.4
4	Total adjusted gross income, tax-law concept (1 + 3 − 2)	74.9	34.9	63.6	172.0
5	Less income reported on nontaxable returns, income too small to be reported, and other unreported income	51.8	26.8	45.7	35.7
6	Adjusted gross income reported on taxable returns (4 − 5)	23.1	8.1	17.9	136.3
7	Less personal deductions	2.7	1.2	1.8	15.7
8	Less distributions on fiduciary returns			.3	
9	Add segregated net capital loss	*	.4		
10	Statutory net income (6 − 7 − 8 + 9)	20.5	7.4	15.8	120.6
11	Less personal exemptions and credits	6.3	3.1	6.5	44.3
12	Less segregated net capital gain	2.3	.3	*	.4
13	Surtax net income (10 — 11 — 12)	11.9	4.0	9.2	75.9
14	Less dividends and interest exempt from normal tax and earned income credit	6.3	1.3	1.2	
15	Normal tax net income (13 − 14)	5.7	2.7	8.0	75.9

Sources of basic data are mainly *National Income Supplement, Survey of Current Business, 1951,* Department of Commerce; and *Statistics of Income* and *Treasury Source Book,* various years, Treasury Department. Fuller details and other sources will be given in a forthcoming report. Figures are preliminary.

* Less than $50 million.

to $26 billion or 14 per cent of total personal income, as against $13 billion or 16 per cent in 1929. The most important cause of the doubling of the absolute amount between 1929 and 1947 was the large growth of transfer receipts, such as veterans' pensions, federal old age benefits, other governmental and private pension receipts in excess of 3 per cent of the recipients' cost basis, consumer bad debts, corporate gifts to nonprofit institutions, personal injury compensation, etc. These transfer receipts, less fees, amounted to $11.7 billion in 1947 as against $1.5 billion in 1929. Other important nontaxable elements in personal income in 1947 were (in billions of dollars): food and lodging furnished employees other than military, and other nontaxable labor income, 3.4;

imputed interest, 3.3; military pay, including allowances, allotments and pay in kind, less the amount taxable, 3.2; food and fuel produced and consumed on farms, 3.1; imputed net rent of owner-occupied farm and nonfarm homes, 2.7; and a negative sum of 3.7 for changes in and revaluations of noncorporate inventories. A significant partial offset to the increases in various sources of nontaxable personal income was the elimination after 1938 of income tax exemption for state and local government wages and salaries, and, after February 28, 1941, of exemption from normal or surtax of interest on new or refunding issues of federal securities. Tax-exempt state and local government salaries had amounted to about $3½ billion in 1929 and 1933.

The principal components of taxable income that are excluded from personal income as measured by the Department of Commerce are statutory net capital gains minus net capital losses, which amounted to $2.1 billion in 1947 as against $2.9 billion in 1929; employee contributions to social insurance systems, which amounted to $2.1 billion in 1947 as against $.1 billion in 1929; the taxable portion of annuities and pensions, commonly 3 per cent of cost basis, which was about $.3 billion in 1947 as against $.1 billion in 1929; and such miscellaneous income as alimony receipts and gambling gains, which amounted to about $.7 billion in 1947.

The notable enlargement of the coverage of the personal income tax from 31 to 79 per cent of aggregate adjusted gross income, and from 27 to 71 per cent of total personal income, between 1929 and 1947 resulted from both statutory and economic changes. The principal statutory changes were (1) reductions in personal exemptions and credits for dependents, (2) removal of tax exemption from state and local governmental salaries and from interest on federal securities issued after February 28, 1941, and (3) elimination of credits against the normal tax for earned income and for dividends. Each of these changes added many individuals and their incomes to the group subject to income tax.

The principal economic changes contributing to the greatly expanded coverage of total personal income by the income tax were the inflation in incomes and changes in their distribution. The rise in the general level of income after 1939, especially in money wages and salaries, reduced the number of persons whose incomes were too small to be taxable, throwing their expanded incomes into the taxable category. In addition, evidence suggests that there has been a relatively rapid advance in the incomes of lower income groups since 1939,[2] a development which

[2] See the recently published volume by Simon Kuznets, *Shares of Upper Income Groups in Income and Savings.*

would tend further to increase the taxable portion of total personal income.

Despite various changes in the statute and the huge increase in the number of taxpayers (from 2.6 million in 1929 to 41.7 million in 1947), the 11.5 per cent reduction in the tax base brought about in 1947 by the allowable personal deductions was about the same proportion as in 1929. The revenue cost of the personal deductions was substantially greater, however, because of the higher level of tax rates. According to studies carried out for me by Harry Kahn, the allowable standard deduction (the lesser of $1,000 or 10 per cent of adjusted gross income) accounted for 55 per cent of total personal deductions, and 6.3 per cent of total adjusted gross income, in 1947. For taxpayers who itemized their personal deductions, charitable contributions accounted for 26 per cent of the total; taxes paid, 22 per cent; medical expenses, 16 per cent; interest paid, 12 per cent; and miscellaneous items, 24 per cent.

The striking rise between 1929 and 1947 in the proportion of adjusted gross income carried down to normal tax net income on taxable returns — from 25 to 56 per cent — is mainly to be explained by the statutory reductions in personal exemptions and credits for dependents, the elimination of the normal tax credit for earned income and dividends, and the exclusion from tax exemption of interest on federal securities issued since February 28, 1941. And the increase from 48 to 100 per cent in the proportion of normal tax net income brought down to surtax net income resulted from the statutory change that caused the surtax as well as the normal tax to be applied to the first bracket of taxable income.

One consequence of the vastly greater coverage and yield, and the higher average level of the widely graduated rates of the personal income tax is the increase in its power to exert counter-cyclical effects upon the national income. In considerable measure these effects are exerted automatically, without dependence upon positive discretionary action by Congress or the Executive branch of government. An increase in personal incomes before taxes tends to bring about a greater than proportional increase in income taxes by subjecting the addition to the higher graduated rates and by adding to the number of persons on the tax rolls. The rise in the disposable, after-tax incomes of households is thereby moderated. Conversely, a decline in personal incomes brings about a greater than proportional reduction in income taxes and, therefore, a less than proportional decline in the disposable incomes of households. Beyond these automatic effects are the very substantial counter-cyclical changes in disposable personal incomes that Congress may now achieve

by seemingly modest alterations in the level of personal exemptions and credits and in the tax rates applicable to the first bracket of taxable incomes. For example, my rough estimate is that a change of $100 in the personal exemption, at recent levels of the national income, would add or subtract more than $2 billion from the disposable incomes of households.

We are continuing our study of the revenue flexibility of the personal income tax, and of such related subjects as the contributions of different income groups and different types of income to the tax revenues, the revenue effects of changes in tax rates, exemptions, credits, and the principal types of personal and business deductions.

Lawrence H. Seltzer

DIVIDENDS UNDER THE INDIVIDUAL INCOME TAX

One of the more striking facts with which we are concerned is the discrepancy between aggregate personal dividend receipts and the amount of dividends reported on personal income tax returns. The data are comprehensive enough to permit reasonably accurate annual estimates of the discrepancy from 1937 on. We can therefore determine how the gap changed, and consider why this happened.

It is not to be expected, of course, that all dividends paid out to individuals would show up on personal income tax returns even if those who filed such returns kept meticulous records and were scrupulously honest. Since the personal and tax return dividend totals both are estimated in part, some statistical discrepancy would be likely. Further, there have always been some dividend recipients with incomes so low that they did not have to file a return, let alone pay taxes. In addition, dividends flowing to nonprofit organizations would show up in the personal income dividend total but not on the tax return dividend total. And some corporate dividend payments (of unknown but undoubtedly small amount) are exempt from personal income tax: liquidating dividends, dividends paid out of earnings made prior to March 1, 1913, dividends of China Trade Corporations, etc.

Presumably, as personal incomes expand and filing requirements are lowered, there should be a rise in the proportion that dividends reported on tax returns comprise of aggregate personal dividend receipts. This is what happened from 1937 through 1941, for example, when the proportion of dividends reported rose from 83 per cent to 92 per cent. For the years that followed 1941, however, our findings run counter to this

reasonable expectation. Between 1941 and 1942 the number of returns filed increased by over 40 per cent, but the proportion of total personal dividend receipts represented thereon fell from 92 to 84 per cent. The dividend representation percentage fell to 78 in 1943 despite a further increase in the number of tax returns. By 1948 the percentage of dividends represented on tax returns had risen almost to its 1942 level, yet it remained considerably below the high mark of 1941 despite the fact that the number of returns filed had doubled. Actually about the same percentage of net corporate dividend payments was represented on the 6.3 million returns filed in 1938 as on the 52.1 million returns submitted in 1948.

An explanation of the fall in the coverage of dividends on tax returns might lie in the extra exemption and deferred filing privilege extended to military personnel in 1941. That some effect was exercised by these provisions seems undeniable. That they are the sole or even a major explanatory factor seems unlikely, however, for the dividend representation ratio remained below its 1940 or 1941 level up through 1948, while by 1946 military personnel numbered less than in 1943, and in 1947 less than in 1942.

If the dividends that went to nonprofit organizations increased greatly, this could furnish a reason for the fall in dividend coverage on tax returns. But our estimates, using Raymond Goldsmith's figures on stockholdings of nonprofit organizations, indicate that the magnitudes involved are not large enough to account for the sharp change between 1941 and 1942 and its continuance since.

We are led to one further conjecture. Could the sharp rise in tax rates between 1940 and 1943 and the high level of rates since have stimulated taxpayers to be less diligent in their reporting of dividends or, to an increased extent, to transfer the ownership of stock to members of the family unit not required to file tax returns? That this may not be an idle question is indicated by the rise, between 1947 and 1948, in the proportion of personal dividend receipts represented on tax returns despite a fall of 3 million in the number of returns filed. For between these two years tax rates declined: exemptions and credits for dependents were raised from $500 to $600, and, more important, the privilege of income-splitting was made available to all married couples.

Daniel M. Holland

THE CORPORATE INCOME TAX

Basic research on this project, which is essentially a historical review, has been completed and the first draft of the manuscript is nearly finished. Some chapters are now being revised on the basis of comments by several members of the staff.

The base of the tax — corporate net income — has been characterized by wide cyclical fluctuations conforming almost perfectly to general business cycles. The tax rates, on the other hand, have been rather stable, except for the two war periods, 1917-18 and 1941-45. In the war periods the tax revenue rose much faster than the tax base, because of sharp increases in the income tax rate and the imposition of special excess profits taxes. In the interwar period changes in tax revenue were mainly determined by profit fluctuations.

Substantial corporate income taxes were imposed for the first time during the World War I period. The effective tax rate on companies with net income rose from 1 per cent in 1914 to 37.8 per cent in 1918. In the same interval profits of companies with net income increased from $3.9 billion to $8.3 billion, and the tax yield rose from $0.4 to $3.2 billion. In the interwar period the effective tax rates ranged from 10.2 per cent (in 1929) to 17.5 per cent (in 1939). Profits showed much wider fluctuations, and the tax yield ranged from $0.3 billions (in 1932) to $1.2 billions (in 1939). In contrast to World War I, the World War II period saw the effective tax rate and the tax base both increase approximately three-fold. Comparing 1939 and 1943 we find that the effective rate rose from 17.5 to 58.1 per cent, corporate net income expanded from $8.8 billion to $28.7 billion, and the tax yield advanced from $1.2 billions to $15.9 billions.

Small-size corporations received preferential tax treatment in most years, either in the form of specific credit or lower statutory rates. Accordingly, when the data for companies with net income are considered, effective tax rates are found to be lower for small-size companies than for large. An entirely different picture, however, is obtained when the data for profit and deficit corporations are combined, i.e., when all companies in a given size class are taken together. We then find the effective tax rates in many years — especially in the thirties — to be much higher for the small-size classes than for the large, because the ratio of deficits to profits was much greater in the small-size groups. Various explanations of this result may be offered, and we are attempting to test them so far as the available data permit.

Special reference may be made to income and excess profits taxes in World War II. As the volume of economic activity expanded, corporate profits before taxes also rose. But the increase in the income tax rate and the new excess profits tax absorbed the greater part of the additional

wartime profits. In dollar terms corporate profits after taxes increased considerably during the 1939-45 period, though much less spectacularly than profits before taxes. The ratio of profit (after taxes) to net worth, for all corporations with net income, remained relatively stable over the entire war period.

The increase in the effective tax rate was less pronounced in the case of small companies than in the case of large concerns. As a result, the profit rate after taxes showed considerable improvement in the small-size groups (with total assets of up to $250,000), while there was little change in the large-size classes. For a given size class, a direct relation is generally found between the profit rate before taxes and the effective tax rate: higher profitability was associated with a greater tax load during the war period.

The combined effect of the increase in the basic income tax and the imposition of the excess profits tax was such that only corporations experiencing a substantial rise in profits before taxes could maintain their profits after taxes at the prewar level. For large corporations it is found that when profits before taxes were less than doubled, the increase in total taxes exceeded the increase in profits, leaving the companies concerned with smaller profits after taxes than they had before the war; when profits before taxes were approximately trebled as compared with prewar, the additional tax absorbed about 80 per cent of the additional profit.

Sergei Dobrovolsky

FEDERAL EXPENDITURES FOR 150 YEARS

With Mark Wehle's aid on the statistical portion, I have completed the manuscript and submitted it to the Director of Research.

The period covered is from 1794 to 1952. The principal trends of federal expenditures, their relationship to gross national product, the effects of war on federal expenditures, the effects of technological changes on military costs, and finally the aftermath of World War II are all examined.

Federal expenditures, adjusted for changes in the price level and for increases in the population, grew between every pair of periods separated by a major war. But though the trend was clearly up, there were many years during which federal expenditures did not increase. From 1794 to 1811, from 1817 to 1846, from 1866 to 1884, and from 1899 to 1916, they were fairly stationary or declining. Indeed, for more than half the life of the nation deflated federal expenditures per capita were not increasing.

of these areas at ten-year intervals in a form as nearly comparable from decade to decade as we could make it. The story they tell will appear in separate reports still to be prepared.

Moses Abramovitz

Other Governments

At present I am exploring the possible extension of the study of governmental economic activities to nations other than the United States and Great Britain. Germany has already been chosen for study, and we are encountering formidable difficulties in obtaining data for the period before World War I: the diligent German bureaucracy seems to have investigated in great detail everything except itself. Two incompatible objectives are being employed in the selection of additional countries for study: their economic and political conditions should be sufficiently different so they complement the studies already under way; and they should possess tolerably reliable data of the types (e.g., labor force and public expenditure) required for detailed analysis of governmental economic activity.

George J. Stigler

TRENDS IN FOREIGN TRADE

We have been seeking light on trends in the foreign trade of the United States by studying, especially, changes in the commodity composition of imports and exports and their relation to domestic production and consumption.

The accompanying table provides a preliminary summary of some of the figures. We may observe that the decline in the over-all ratio of imports to consumption, from 10.9 per cent in 1869 to 3.2 per cent in 1947, is largely a reflection of corresponding declines in individual industrial groups. However, shifts in the composition of domestic consumption may also have contributed to the over-all decline. We expect to analyze these components systematically.

Price changes are involved, of course, in the composition changes shown in the table. Robert E. Lipsey has undertaken to develop appropriate import and export price indexes for the commodity groups shown, in order to get at the effect of price changes and thus enable us to study the physical volume of our foreign trade. He hopes to cover the period back to 1869 and, to the extent possible, calculate the indexes on a quarterly basis. His results should therefore be useful in the analysis of cyclical as well as secular changes in trade.

Solomon Fabricant

COMPOSITION OF UNITED STATES IMPORTS AND EXPORTS, AND THEIR RELATION TO DOMESTIC CONSUMPTION AND PRODUCTION, 1869, 1909, AND 1947

INDUSTRY GROUP	IMPORTS, % OF TOTAL[a]			EXPORTS, % OF TOTAL			IMPORTS AS % OF CONSUMPTION			EXPORTS AS % OF PRODUCTION		
	1869	*1909*	*1947*	*1869*	*1909*	*1947*	*1869*	*1909*	*1947*	*1869*	*1909*	*1947*
Manufacturing												
Foods	21.68	20.51	18.18	13.73	15.40	10.88	19.8	9.5	3.8	7.8	6.9	5.1
Beverages	2.58	2.24	1.52	0.22	0.24	0.44	15.2	5.8	1.8	0.8	0.6	1.2
Tobacco products	0.50	0.69	0.05	0.53	0.34	0.51	5.3	3.0	0.1	3.1	1.4	2.7
Textile products	26.62	15.84	5.54	1.56	3.06	9.33	20.8	8.6	1.7	0.8	1.7	6.3
Leather products	2.07	1.10	0.55	0.22	2.78	0.59	4.0	2.1	1.0	0.2	4.7	2.4
Rubber products	0.21	0.10	0.04	0.05	0.51	1.46	10.0	1.0	0.1	1.4	4.5	8.0
Paper products	0.84	1.39	9.45	0.12	0.57	1.25	32.8	5.8	8.3	3.6	2.3	2.7
Printing & publishing	0.34	0.61	0.13	0.10	0.37	0.51	2.8	1.4	0.1	0.4	0.8	1.2
Chemicals	6.04	6.46	4.36	3.28	5.08	6.79	26.8	11.8	2.5	9.7	9.0	8.2
Petroleum & coal products	0.00	0.08	1.50	6.71	6.30	4.43	0.0	0.6	1.4	99.3	30.0	8.4
Stone, clay, glass products	2.37	1.78	0.63	0.19	0.42	1.46	11.7	5.5	1.1	0.6	1.3	5.5
Forest products	1.95	3.10	3.82	3.59	4.29	1.75	3.6	3.6	3.5	3.6	4.7	3.6
Iron & steel products	7.42	1.68	0.43	1.77	5.40	6.64	12.0	1.4	0.2	1.7	4.2	6.5
Nonferrous metal products	4.49	5.86	5.96	0.57	6.30	2.17	20.1	9.2	5.2	1.7	9.3	4.4
Machinery	0.21	0.56	0.92	1.44	6.09	16.07	0.9	0.8	0.3	3.2	7.7	10.0
Transportation equipment	0.00	0.29	0.29	0.24	1.21	10.41	0.0	0.8	0.2	0.8	3.2	15.0
Miscellaneous	1.18	1.44	1.63	0.14	0.89	2.05	17.2	5.7	3.1	1.4	3.4	8.5
Total Manufacturing	78.50	63.73	55.01	34.45	59.26	76.74	14.0	5.9	2.2	3.7	5.2	6.6
Agriculture	19.13	26.41	30.97	63.03	36.29	10.79	5.8	8.3	6.0	9.8	10.5	4.8
Fisheries	0.01	0.13	0.45	0.05	0.06	0.00	1.1	4.8	15.3	2.1	2.0	0.2
Mining	0.41	5.00	8.42	1.27	2.94	5.48	2.1	7.3	6.0	3.5	4.2	8.6
Grand Total[b]	100.00	100.00	100.00	100.00	100.00	100.00	10.9	6.8	3.2	6.2	6.4	6.9

[a] Imports for consumption, including duties.
[b] Includes some unspecified items and a few statistical adjustments.

A revised draft of my manuscript on "Concentration in Canadian Manufacturing Industries" was prepared and circulated to the staff. In addition I wrote a paper on "Measures of Concentration" for the Universities-National Bureau Conference on Business Concentration and Price Policy.

Research for this paper established for the United States some of the findings previously obtained for Canada. For example, in cross-sections of industries, different types of indexes of concentration were found to be highly correlated. Moreover, much the same ranking of industries is obtained whether concentration is measured in terms of assets, output, and employment, though generally asset concentration exceeds output concentration, which in turn exceeds employment concentration.

Two other findings in the paper may be noted.

1. A comparison of concentration in manufacturing industries of the United States and Great Britain for 1935 showed a slightly higher average level in Great Britain, but in a great many industries — over two-fifths of those examined — concentration is higher in the United States.

2. A comparison of concentration in United States manufacturing industries for 1935 and 1947 showed very little change in the average level. Measuring concentration by the percentage of an industry's output concentrated in the four largest firms, the average for a large sample of industries fell from 44 per cent in 1935 to 41.4 per cent in 1947, as a result of the increasing importance of industries with low concentration.

Gideon Rosenbluth

OTHER STUDIES

Simon Kuznets and Ernest Rubin have completed a *Technical Paper* on immigration and the foreign born population. Penelope Hartland hopes to find time during 1953 to continue her study of international capital movements and Canadian economic development.

Several other studies of foreign economies are in progress: see Bry's study of German wages and Long's study of the labor force in several countries, in Section 3; Rolph's report on national debt management in various countries, in Section 5; and Mintz' study of foreign-trade cycles, in Section 1. A study of the demand for American capital abroad is reported by Fabricant in Section 2. The status of Hultgren's manuscript on British railroads and Morgenstern's on international financial cycles is noted at the end of Section 1. Other studies of government activity are reported in Sections 1-5. Woolley's exploration of the structure of world trade and payments is mentioned in Part Two.

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